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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

DECEMBER, 94

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2. Global Data Monitoring Statistics

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 $m\ s^{-1}$ (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEALEVEL PRESSURE									
C6FA6	ALL	MSLP	SUR	27	0	0	1.0	-6.2	6.3
C6KB6	ALL	MSLP	SUR	39	0	0	1.9	-5.9	6.2
DUMO	ALL	MSLP	SUR	26	0	0	2.5	6.3	6.8
ELEW9	ALL	MSLP	SUR	25	0	0	2.8	-5.4	6.0
ELND2	ALL	MSLP	SUR	21	1	5	1.2	-4.7	4.9
ESCA	ALL	MSLP	SUR	35	1	3	0.8	12.3	12.3
HSBN	ALL	MSLP	SUR	42	0	0	1.1	-4.4	4.5
KXDB	ALL	MSLP	SUR	23	0	0	1.3	-9.8	9.9
LA004	ALL	MSLP	SUR	20	1	5	3.7	6.2	7.2
NHAR	ALL	MSLP	SUR	32	0	0	2.4	-4.1	4.8
NQST	ALL	MSLP	SUR	37	1	3	1.3	-4.4	4.6
OUZW2	ALL	MSLP	SUR	20	0	0	2.3	5.5	5.9
OYMO2	ALL	MSLP	SUR	25	0	0	1.1	-9.0	9.0
P3NE5	ALL	MSLP	SUR	28	0	0	2.1	5.4	5.8
P3XM4	ALL	MSLP	SUR	48	0	0	1.3	-4.3	4.4
SIJD	ALL	MSLP	SUR	27	0	0	1.0	6.1	6.2
VRUA4	ALL	MSLP	SUR	88	0	0	1.2	5.4	5.5
VRUH6	ALL	MSLP	SUR	20	0	0	4.6	4.2	6.2
WA8463	ALL	MSLP	SUR	46	1	2	2.4	-4.7	5.3
WXY6216	ALL	MSLP	SUR	22	0	0	2.6	-5.1	5.8
ZBWP	ALL	MSLP	SUR	32	0	0	0.7	4.0	4.0
3EAY5	ALL	MSLP	SUR	29	0	0	1.8	-5.2	5.5
3EER8	ALL	MSLP	SUR	40	0	0	1.9	-4.0	4.4
3EWF5	ALL	MSLP	SUR	20	0	0	1.4	-4.1	4.3
WIND SPEED									
C6JD4	ALL	SPEED	SUR	33	1	3	5.7	12.4	13.7
C6KI6	ALL	SPEED	SUR	27	1	4	7.4	12.6	14.6
C6KM6	ALL	SPEED	SUR	36	2	6	7.6	5.4	9.3
D5AN	ALL	SPEED	SUR	33	0	0	4.0	5.9	7.2
ELIU2	ALL	SPEED	SUR	20	1	5	3.0	5.2	6.0
ELJS6	ALL	SPEED	SUR	32	0	0	4.5	5.7	7.3
ELND4	ALL	SPEED	SUR	34	0	0	2.9	5.7	6.4
FHSN	ALL	SPEED	SUR	34	0	0	6.4	7.9	10.1
FNIH	ALL	SPEED	SUR	90	5	6	6.7	10.4	12.4
FNWC	ALL	SPEED	SUR	45	2	4	5.4	9.5	10.9
GBXW	ALL	SPEED	SUR	81	0	0	4.2	6.2	7.5
HPKW	ALL	SPEED	SUR	22	0	0	3.2	16.9	17.2
HSGX	ALL	SPEED	SUR	39	3	8	6.1	11.2	12.7
HZYZ	ALL	SPEED	SUR	27	3	11	7.8	5.0	9.3
JFUG	ALL	SPEED	SUR	73	3	4	7.2	5.9	9.3
J8EJ8	ALL	SPEED	SUR	64	0	0	4.4	5.3	6.9
LACU2	ALL	SPEED	SUR	26	1	4	5.4	6.0	8.1
OXKT2	ALL	SPEED	SUR	21	0	0	3.8	5.1	6.4
SIJD	ALL	SPEED	SUR	27	0	0	5.4	8.0	9.7
TSLN	ALL	SPEED	SUR	44	0	0	3.4	5.5	6.5
VJDK	ALL	SPEED	SUR	62	1	2	4.7	7.3	8.7
VRUM3	ALL	SPEED	SUR	37	3	8	5.7	15.3	16.3
WSDK	ALL	SPEED	SUR	23	0	0	5.0	5.1	7.1
9VBZ	ALL	SPEED	SUR	21	0	0	3.3	5.8	6.7
WIND DIRECTION									
A8JW	ALL	DIRN.	SUR	20	0	0	84.3	31.5	89.9
USZQ	ALL	DIRN.	SUR	43	0	0	85.5	-19.5	87.7
ZEOD	ALL	DIRN.	SUR	25	0	0	50.5	43.6	66.7
32303	ALL	DIRN.	SUR	34	0	0	81.8	-7.3	82.1
43001	ALL	DIRN.	SUR	48	0	0	31.0	-39.5	50.2
43301	ALL	DIRN.	SUR	41	0	0	64.9	-40.3	76.4
46006	ALL	DIRN.	SUR	113	0	0	23.8	-39.9	46.5
46035	ALL	DIRN.	SUR	87	8	9	81.2	-1.2	81.2

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
46181	ALL	DIRN.	SUR	92	0	0	68.9	-53.1	87.0
51010	ALL	DIRN.	SUR	46	0	0	80.0	18.3	82.0
51304	ALL	DIRN.	SUR	39	0	0	56.6	-38.0	68.1
52007	ALL	DIRN.	SUR	28	0	0	62.0	-36.0	71.7
52310	ALL	DIRN.	SUR	31	0	0	76.4	-33.3	83.4
52311	ALL	DIRN.	SUR	26	0	0	92.9	-14.4	94.1

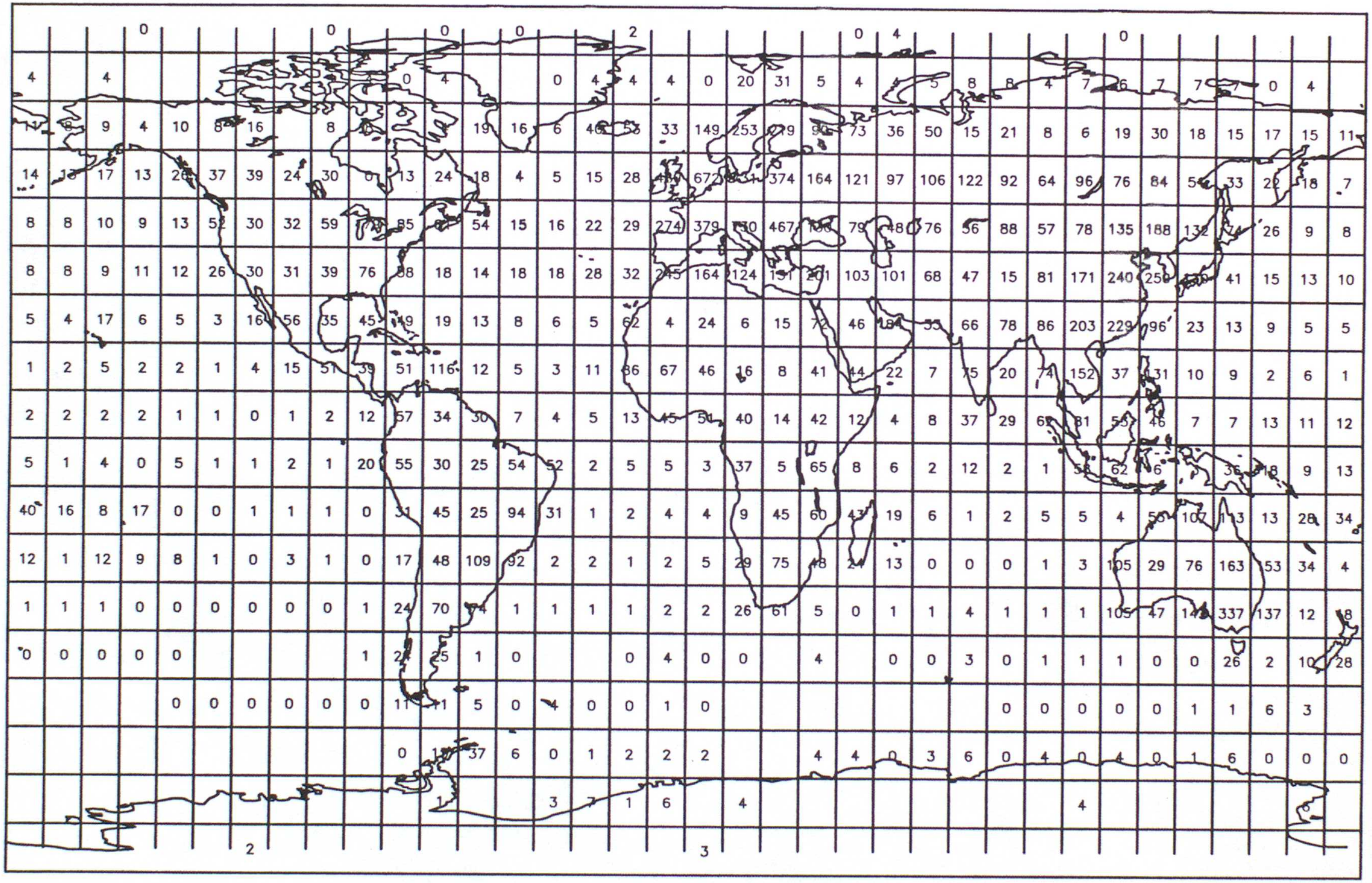
AVAILABILITY – SHIP/SYNOP – DECEMBER 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18857

FIGURE 1



			0					0			0		0			2						0	4						0						
4		4								0	4			0	4	4	4	0	20	31	5	4	4	5	8	8	4	7	6	7	7	7	0	4	
11	8	9	4	10	8	16		8	[illegible]		[illegible]	19	16	6	46	53	33	149	253	279	90	73	36	50	15	21	8	6	19	30	18	15	17	15	11
14	13	17	13	26	37	39	24	30	[illegible]	13	24	18	4	5	15	28	[illegible]	672	[illegible]	374	164	121	97	106	122	92	64	96	76	84	54	33	22	18	7
8	8	10	9	13	52	30	32	59	[illegible]	85	[illegible]	54	15	16	22	29	274	379	[illegible]	467	[illegible]	79	48	76	56	88	57	78	135	188	132	74	26	9	8
8	8	9	11	12	26	30	31	39	76	88	18	14	18	18	28	32	245	164	124	151	201	103	101	68	47	15	81	171	240	250	[illegible]	41	15	13	10
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12	1	12	9	8	1	0	3	1	0	17	48	109	92	2	2	1	2	5	29	75	48	24	13	0	0	0	1	3	105	29	76	163	153	34	4
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				0	0	0	0	0	0	11	11	5	0	4	0	0	1	0								0	0	0	0	0	1	1	6	3	
										0	1	37	6	0	1	2	2	2			4	4	0	3	6	0	4	0	4	0	1	6	0	0	0
											1			3	7	1	6		4									4							
						2												3																	

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa :25 m s^{-1}	(pressure) (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25.

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
44769	62.0	-12.3	ALL	MSLP	SUR	332	138	42	3.2	0.8	3.4
WIND SPEED											
46527	45.4	168.6	ALL	SPEED	SUR	60	0	0	3.2	-7.6	8.2
46551	44.7	-166.2	ALL	SPEED	SUR	155	0	0	3.4	-5.4	6.4
52525	23.4	127.7	ALL	SPEED	SUR	56	0	0	2.5	-7.6	8.0
52526	15.6	136.0	ALL	SPEED	SUR	103	0	0	2.1	-5.2	5.6
52540	28.9	147.3	ALL	SPEED	SUR	157	0	0	2.3	-5.2	5.7
64544	57.6	-43.1	ALL	SPEED	SUR	206	3	1	3.9	-6.9	7.9
WIND DIRECTION											
21527	31.0	137.9	ALL	DIRN.	SUR	143	0	0	68.3	47.1	83.0
46657	46.5	-157.6	ALL	DIRN.	SUR	69	0	0	50.0	-34.3	60.7
52525	23.4	127.7	ALL	DIRN.	SUR	46	0	0	33.3	-45.4	56.3
64544	57.6	-43.1	ALL	DIRN.	SUR	171	3	2	83.7	-9.2	84.2
64545	61.2	-23.8	ALL	DIRN.	SUR	48	0	0	81.6	81.2	115.1

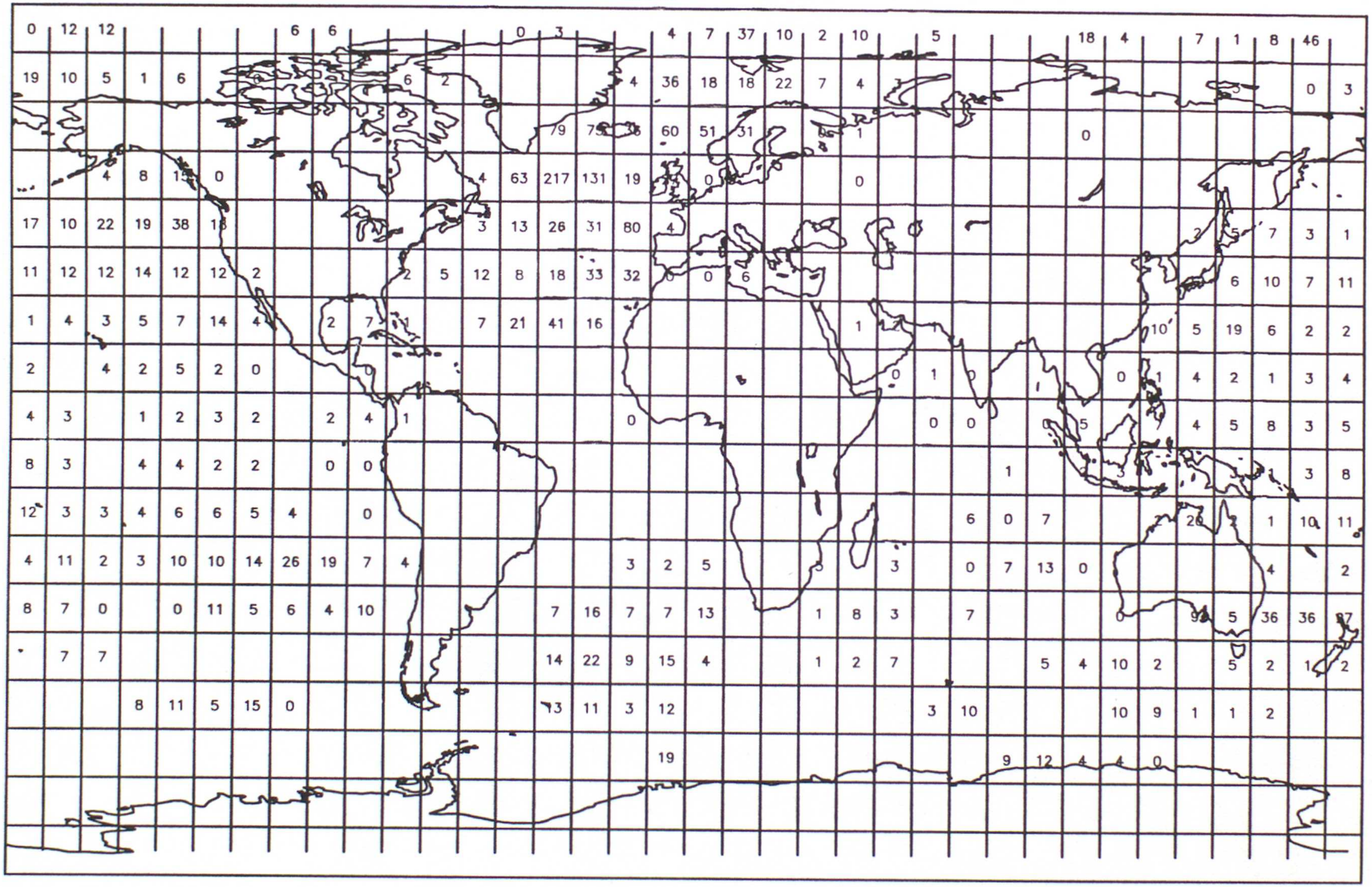
AVAILABILITY – DRIBU – DECEMBER 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 2810

FIGURE 2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19 10 5 1 6 6 2 4 36 18 18 22 7 4 3 0 3
79 75 36 60 51 31 65 1 0
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17 10 22 19 38 18 3 13 26 31 80 4 2 5 7 3 1
11 12 12 14 12 12 2 2 5 12 8 18 33 32 0 0 6 6 10 7 11
1 4 3 5 7 14 4 2 7 1 7 21 41 16 1 1 1 10 5 19 6 2 2
2 4 2 5 2 0 0 0 1 0 0 1 4 2 1 3 4
4 3 1 2 3 2 2 4 1 0 0 0 5 4 5 8 3 5
8 3 4 4 2 2 0 0 1 3 3 8
12 3 3 4 6 6 5 4 0 6 0 7 2 26 2 1 10 11
4 11 2 3 10 10 14 26 19 7 4 3 2 5 3 3 0 7 13 0 4 2
8 7 0 0 11 5 6 4 10 7 16 7 7 13 1 8 3 7 0 93 5 36 36 37
7 7 14 22 9 15 4 1 2 7 5 4 10 2 5 2 1 2
8 11 5 15 0 13 11 3 12 3 10 10 9 1 1 2
19 9 12 4 4 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flaggled.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	120	1	1	70	1.0	4.5	4.6
60468	35.6N	6.2E	1052	S8	102	98	96	28	4.0	-2.8	4.9
60511	35.3N	1.4E	1127	S8	119	118	99	100	0.0	9.6	9.6
60571	31.6N	2.2W	773	S8	116	2	2	48	1.1	-4.8	4.9
60670	24.6N	9.5E	1054	S8	116	3	3	97	0.9	8.3	8.3
61731	13.3N	14.2W	4	M	23	0	0	0	0.9	-5.2	5.3
62795	12.7N	34.1E	445	MS	37	0	0	3	1.8	-4.5	4.8
63333	11.1N	39.7E	1916	MS	54	0	0	96	1.1	6.7	6.8
63451	8.7N	39.0E	1876	MS	34	0	0	9	0.8	-4.2	4.3
63453	8.8N	39.8E	1062	S	51	5	10	98	1.9	13.0	13.1
63474	7.1N	40.0E	2450	S	38	37	97	0	0.0	-1.5	1.5
63478	5.1N	44.6E	320	MS	33	0	0	0	1.0	6.5	6.6
63801	4.9S	29.6E	885	S8	23	1	4	96	1.1	8.7	8.8
64503	3.4S	10.7E	34	M	43	0	0	28	2.0	-7.3	7.6
64507	2.9S	11.0E	79	M	43	0	0	0	1.3	-7.5	7.6
64911	5.0N	9.9E	821	8	57	0	0	32	1.3	-5.2	5.4
67231	14.8S	36.5E	607	S8	26	0	0	12	1.2	4.4	4.6
68014	19.6S	18.1E	1411	S8	54	0	0	54	1.6	-5.7	5.9

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
23383	66.9N	93.5E	263	M	85	1	1	26	3.5	5.9	6.9
24382	66.4N	143.2E	196	MS	59	1	2	69	3.6	8.1	8.9
24671	63.9N	135.9E	400	MS	97	32	33	64	2.3	11.9	12.1
25538	64.1N	164.6E	326	M	111	0	0	19	2.4	5.6	6.1
25902	60.8N	151.8E	797	MS	49	19	39	98	2.1	-13.2	13.4
29956	52.8N	99.9E	455	MS	111	0	0	26	3.7	4.0	5.4
29999	52.5N	99.8E	1570	S8	106	106	100	72	0.0	0.0	0.0
30253	57.9N	114.2E	278	MS	106	1	1	30	3.3	6.9	7.6
30385	56.6N	121.5E	426	MS	113	0	0	27	3.6	4.0	5.4
30521	54.8N	105.2E	426	MS	103	1	1	21	2.4	4.1	4.8
30549	54.2N	112.0E	1302	S8	52	2	4	35	2.0	-4.7	5.1
30554	54.5N	113.6E	995	MS	60	0	0	100	1.5	9.2	9.3
30627	53.1N	105.5E	761	MS	53	1	2	30	2.3	-5.2	5.7
30650	53.2N	112.8E	923	MS	60	0	0	2	1.4	-4.6	4.8
30664	53.6N	115.6E	812	MS	27	1	4	4	1.4	-5.0	5.2
30669	53.1N	117.5E	707	MS	58	0	0	2	1.4	-6.1	6.3
30739	52.2N	109.8E	666	MS	59	2	3	8	1.5	-7.8	7.9
30741	52.9N	110.5E	1255	S8	116	9	8	52	2.5	-7.8	8.2
30764	52.6N	115.2E	646	MS	59	1	2	2	1.6	-5.2	5.4
30838	51.3N	108.9E	800	MS	58	0	0	0	1.7	-4.5	4.8
30846	51.4N	112.5E	741	MS	60	1	2	0	1.5	-5.2	5.4
30859	51.1N	114.6E	678	MS	58	0	0	0	2.0	-5.9	6.2
30862	51.9N	116.0E	597	MS	58	0	0	0	1.8	-5.1	5.4
30925	50.4N	106.5E	789	MS	60	2	3	5	1.8	-4.6	4.9
30967	49.9N	115.8E	623	MS	56	2	4	0	1.9	-5.5	5.8
31474	51.6N	133.3E	382	MS	28	0	0	29	3.3	5.9	6.8
31532	50.8N	132.2E	234	MS	84	0	0	8	2.1	7.0	7.3
36870	43.2N	76.9E	847	MS	57	51	89	88	1.2	-0.7	1.4
38611	41.0N	71.6E	465	MS	115	0	0	2	2.0	5.5	5.9
38613	40.9N	72.9E	771	MS	57	3	5	4	2.5	4.0	4.7
38836	38.6N	68.8E	824	MS	41	2	5	2	2.0	4.7	5.1
38933	37.8N	68.8E	430	MS	74	0	0	3	2.6	4.4	5.1
40376	27.6N	38.6E	860	MS	31	31	100	0	0.0	0.0	0.0
40432	25.8N	42.0E	783	MS	31	31	100	0	0.0	0.0	0.0
40450	23.7N	44.6E	1080	MS	31	31	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	109	0	0	99	1.4	8.6	8.7
40723	37.5N	57.3E	1074	MS	97	0	0	5	1.1	-4.0	4.1

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
40726	36.8N	45.7E	1385	MS	88	0	0	36	1.3	4.9	5.1
40743	36.2N	57.7E	941	MS	109	1	1	16	1.5	-4.2	4.5
40762	35.3N	59.2E	1333	MS	107	30	28	100	1.1	-13.6	13.6
40763	35.2N	58.5E	1060	MS	53	1	2	26	1.2	-5.4	5.5
40783	32.4N	49.7E	1972	MS	45	1	2	98	1.5	-8.3	8.4
40789	33.8N	55.1E	921	MS	87	3	3	97	2.1	8.9	9.1
40818	31.2N	52.7E	2004	MS	101	0	0	50	1.1	-4.4	4.5
40836	30.8N	51.7E	1880	MS	105	0	0	92	1.3	7.9	8.0
40859	29.0N	53.7E	1383	MS	100	0	0	100	1.1	9.9	10.0
41254	23.1N	57.7E	1755	S8	84	84	100	24	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	31	0	0	74	1.4	6.9	7.0
44212	49.8N	92.1E	936	MS	107	0	0	35	3.9	4.2	5.7
44239	48.8N	103.6E	1210	MS	91	2	2	5	2.1	-4.0	4.5
44275	46.8N	98.1E	2255	MS	92	2	2	16	1.9	-4.2	4.6
44277	46.4N	96.3E	2147	MS	102	1	1	63	1.9	-7.5	7.7
44292	47.9N	107.0E	1338	MS	98	0	0	85	1.5	4.1	4.4
44416	28.6N	81.6E	720	MS	84	0	0	32	2.2	5.4	5.8
44477	27.0N	87.4E	1445	S8	72	72	100	96	0.0	0.0	0.0
47014	41.8N	126.9E	332	M	120	0	0	1	2.3	4.6	5.1
51288	45.4N	90.5E	1651	S	123	0	0	45	2.0	-4.5	4.9
51334	44.6N	82.9E	321	M	121	1	1	26	3.6	8.5	9.2
51379	44.0N	89.6E	794	M	122	0	0	17	2.7	5.3	5.9
51467	42.7N	86.3E	1753	S	121	0	0	15	1.5	6.0	6.2
51818	37.6N	78.3E	1376	M	119	4	3	61	2.8	7.2	7.7
52378	41.4N	102.4E	960	M	122	0	0	52	2.8	6.3	6.9
52602	38.8N	93.4E	2734	S	119	0	0	37	2.9	-6.3	6.9
52866	36.7N	101.8E	2296	S	123	0	0	51	1.8	5.2	5.5
53083	44.6N	114.2E	1183	M	123	1	1	76	3.2	7.3	8.0
53352	41.7N	110.4E	1377	M	122	0	0	57	2.9	7.5	8.0
53480	41.0N	113.1E	1416	M	117	1	1	50	3.3	6.1	6.9
53487	40.1N	113.3E	1069	M	122	5	4	36	2.8	6.1	6.7
53502	39.8N	105.8E	1033	M	122	1	1	38	2.9	5.7	6.4
53588	39.0N	113.5E	2898	S	122	1	1	59	1.5	-5.0	5.2
53705	37.5N	105.7E	1185	M	122	0	0	35	2.4	5.5	6.0
54308	41.2N	116.6E	661	M	121	0	0	7	2.3	4.5	5.1
54311	41.9N	117.8E	844	M	122	1	1	9	2.7	4.8	5.5
54374	41.7N	126.9E	333	MS	122	1	1	1	2.1	4.9	5.3
54386	41.4N	128.2E	1018	M	122	1	1	2	3.1	5.9	6.7
55696	28.4N	92.5E	3861	S	115	0	0	20	2.6	-5.0	5.6
56144	31.7N	98.6E	3204	S	118	3	3	22	2.8	-5.2	5.9
56287	30.0N	103.0E	629	M	121	0	0	2	1.9	4.8	5.2
56385	29.5N	103.3E	3049	S	124	0	0	32	1.6	-6.1	6.3
56444	28.5N	98.9E	3488	S	118	118	100	99	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	117	0	0	91	2.5	5.9	6.4
56946	23.6N	99.4E	1104	M	121	0	0	25	2.5	4.7	5.3
57006	34.6N	105.8E	1143	M	121	0	0	0	2.9	4.7	5.5
57622	28.9N	107.2E	1907	S	108	31	29	100	1.1	-13.0	13.0
57816	26.5N	106.7E	1222	MS	120	111	93	100	0.1	14.7	14.7
58437	30.1N	118.2E	1836	S	123	1	1	6	1.4	-4.2	4.4
58445	30.3N	119.4E	1494	S	123	0	0	20	1.4	-4.6	4.8

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	36	0	0	3	1.6	-4.8	5.1
80315	3.0N	75.3W	443	MS	61	0	0	0	1.7	-4.1	4.4
82704	7.6S	72.7W	170	MS	75	0	0	0	2.2	-5.0	5.5
83208	12.7S	60.1W	652	MS	55	1	2	0	1.4	4.6	4.8
83235	12.3S	46.4W	660	MS	32	1	3	84	1.2	6.2	6.3
83295	13.4S	39.9W	755	MS	28	0	0	79	0.9	-5.1	5.2
83332	14.1S	46.4W	950	MS	59	9	15	100	0.9	13.4	13.4
83423	16.7S	49.3W	729	MS	60	0	0	72	1.2	-4.9	5.0
83488	17.8S	42.9W	1097	MS	78	78	100	100	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	72	1	1	1	2.1	-5.4	5.8
83531	18.6S	46.5W	896	MS	82	1	1	67	1.2	-6.9	7.0
83587	19.8S	43.9W	850	MS	83	0	0	84	2.3	-7.6	7.9
83618	20.8S	51.6W	313	MS	43	0	0	16	2.6	5.4	6.0
83689	21.3S	43.8W	1171	MS	65	1	2	97	1.0	4.4	4.5
84425	5.9S	76.1W	184	MS	87	0	0	21	3.0	5.2	6.0
84455	6.5S	76.4W	282	MS	87	1	1	2	2.6	4.4	5.1
84472	7.1S	78.5W	2622	S	59	1	2	98	1.6	-8.7	8.8
84531	9.2S	78.5W	21	S	59	0	0	0	1.0	4.8	4.9
84658	12.6S	69.2W	266	MS	86	0	0	0	2.8	4.6	5.4
84686	13.6S	72.0W	3249	S	119	0	0	46	2.0	-8.2	8.4
84782	18.1S	70.3W	469	MS	111	1	1	4	2.0	4.7	5.1
85223	17.4S	66.1W	2548	S7	101	1	1	16	2.0	-4.0	4.5
85312	19.8S	64.0W	-9999	M	24	1	4	96	1.6	-9.8	9.9
85365	22.0S	63.7W	643	MS	52	2	4	33	2.3	5.5	6.0
85406	18.3S	70.3W	58	M	112	1	1	1	1.7	4.8	5.1
87046	24.4S	65.1W	905	M	85	84	99	98	0.0	-2.4	2.4
87217	29.4S	66.8W	429	M	83	0	0	7	2.0	-4.3	4.7
87322	31.3S	66.6W	658	MS	79	79	100	0	0.0	0.0	0.0
87506	35.5S	69.6W	1425	S8	90	0	0	7	2.1	-4.9	5.3
87803	42.9S	71.2W	785	MS	114	0	0	12	1.6	-4.2	4.5
87814	43.8S	68.9W	460	MS	59	0	0	3	2.2	-4.5	5.0

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
70251	62.3N	150.1W	109	MS	29	0	0	0	1.8	4.0	4.4
71421	51.9N	63.3W	561	MS	122	0	0	26	1.5	-4.2	4.5
71882	51.0N	118.2W	443	MS	108	0	0	29	3.5	4.4	5.6
71966	64.1N	139.1W	370	MS	62	0	0	29	3.3	7.6	8.3
76118	30.4N	109.7W	1040	MS	21	0	0	100	1.0	-9.6	9.7
76373	25.3N	105.8W	1967	MS	61	58	95	100	0.8	14.3	14.3
76539	22.1N	101.0W	1871	MS	103	0	0	85	1.1	-5.7	5.8
76632	20.1N	98.7W	2417	MS	64	0	0	100	1.1	-8.1	8.2
76692	19.1N	96.1W	13	MS	103	0	0	0	1.1	4.9	5.0
76726	18.9N	99.3W	1560	MS	73	1	1	99	1.2	-8.2	8.3
76750	18.5N	88.3W	3	MS	107	0	0	1	1.3	-4.3	4.5
76762	17.5N	99.5W	1360	MS	74	1	1	100	1.1	10.9	11.0
76848	16.3N	92.1W	1530	MS	106	27	25	99	0.7	-14.0	14.0

WMO REGION 5:

NO SUSPECTS IN THIS REGION

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	91	0	0	96	0.9	-5.2	5.3
04266	60.8N	48.4W	33	M	63	63	100	24	0.0	0.0	0.0
06670	47.5N	8.5E	432	MS	122	0	0	2	1.4	4.0	4.2
06700	46.3N	6.1E	416	MS	122	0	0	2	1.7	4.1	4.4
06762	46.2N	8.9E	198	MS	122	0	0	1	2.7	4.6	5.3
06771	45.9N	8.9E	356	MS	122	0	0	0	2.2	4.5	5.0
06990	47.1N	9.5E	463	MS	122	0	0	7	1.9	4.6	5.0
08221	40.5N	3.6W	633	MS	120	0	0	100	1.4	7.1	7.2
11021	49.0N	15.0E	561	MS	123	0	0	9	0.9	4.1	4.2
11101	47.5N	9.7E	438	MS	124	0	0	6	1.4	4.5	4.7
11105	47.3N	9.6E	440	MS	93	0	0	6	1.7	4.9	5.2
11128	47.0N	11.5E	1450	M	56	0	0	9	0.9	4.1	4.2
11130	47.6N	12.2E	508	MS	123	1	1	28	2.0	4.3	4.7
11141	47.4N	13.2E	550	MS	118	0	0	25	1.2	5.7	5.8
11231	46.6N	14.3E	476	MS	124	0	0	15	1.7	4.2	4.5
11241	47.2N	15.5E	1438	S8	50	21	42	82	4.3	-4.7	6.4
11356	47.6N	13.8E	661	S	67	0	0	13	1.1	4.2	4.3
11360	47.5N	14.1E	710	MS	29	0	0	24	0.9	5.2	5.3
13369	43.3N	20.0E	1039	8	115	0	0	83	2.4	-4.0	4.7
15052	47.4N	25.6E	1541	S8	120	3	3	97	1.7	-6.5	6.7
16020	46.5N	11.3E	1461	MS	55	55	100	0	0.0	0.0	0.0
16054	45.7N	7.4E	547	MS	91	85	93	80	0.9	1.6	1.8
16134	44.2N	10.7E	2173	S8	114	2	2	62	1.5	-5.3	5.5
16614	40.4N	21.3E	604	MS	113	0	0	99	1.3	-7.0	7.1
17084	40.6N	35.0E	837	MS	117	0	0	99	1.0	8.7	8.8
17260	37.1N	37.4E	855	MS	116	115	99	100	0.0	2.2	2.2
37228	43.1N	44.6E	670	MS	60	1	2	77	1.6	-4.0	4.3
37549	41.7N	44.9E	490	M	22	1	5	9	2.8	5.0	5.7
40184	31.8N	35.2E	809	S8	121	1	1	99	1.4	6.5	6.6

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89266	72.2S	60.3W	91	MS	29	12	41	55	3.8	-4.7	6.0
89606	78.5S	106.9E	3420	S7	122	2	2	16	3.3	-5.5	6.4
89757	73.8S	55.7E	2775	S7	80	80	100	54	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	91	2	2	54	3.0	-8.4	8.9
89805	74.1S	109.8E	3070	S7	91	26	29	22	5.7	1.9	6.0
89811	66.7S	112.9E	1362	S8	89	0	0	33	2.8	-6.2	6.8
89828	74.5S	123.0E	3280	S7	28	1	4	64	3.6	9.1	9.8
89832	66.7S	139.8E	240	MS	22	22	100	100	0.0	0.0	0.0
89860	74.2S	160.3E	1772	S8	26	0	0	8	1.5	-6.2	6.4

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	195	1	51	4.2	-2.5	194	1	12	3	12.1	4.6
AAL	4308	0	2	1.9	0.0	4312	0	2	0	8.5	1.1
AAN	77	0	4	2.0	-0.5	71	0	4	0	10.7	-0.3
AAR	1930	1	2	2.1	-0.1	1937	0	3	0	8.7	0.8
ACA	1024	1	3	2.0	0.0	1048	0	2	0	7.9	0.6
ACI	43	5	5	2.1	0.6	41	0	0	0	7.2	2.5
ADV	20	0	0	2.2	1.4	20	0	0	0	8.7	-0.1
AEA	120	13	73	4.5	1.6	115	0	4	0	11.8	0.6
AEL	424	2	4	2.4	0.1	428	0	3	0	9.0	0.8
AFL	116	1	100	3.2	1.5	110	0	100	1	14.4	3.1
AFR	1329	1	4	1.9	0.0	1336	0	5	0	8.4	0.7
AIC	22	0	9	2.9	-0.6	22	0	18	0	17.3	4.5
AJJ	85	1	8	2.8	0.3	88	0	7	0	10.3	2.9
AMT	388	0	2	1.8	0.4	396	0	4	0	10.6	1.5
AMX	348	5	100	2.3	-0.4	352	0	4	0	9.4	0.3
ANA	830	0	2	2.1	-0.5	829	0	3	0	9.1	1.0
ANG	24	4	4	1.2	-0.1	23	0	4	0	7.5	1.5
ANZ	3416	1	3	1.9	0.0	3382	0	3	1	7.9	0.6
AOM	736	1	2	1.6	0.5	745	0	72	0	10.0	1.0
ARG	36	3	3	1.9	0.7	35	0	0	0	8.6	-1.6
ARP	98	0	4	2.1	0.7	96	0	1	0	8.1	2.1
ASY	25	16	24	3.3	0.5	25	0	0	0	7.4	1.7
AUA	64	0	2	2.0	-0.6	65	0	3	0	9.3	1.4
AVA	343	3	4	2.1	-0.2	349	0	3	0	10.2	1.3
AVN	37	3	0	1.7	0.0	37	0	0	0	6.4	0.8
AZA	516	1	3	2.1	0.6	522	0	3	0	9.4	0.6
BAL	192	1	9	2.1	-0.4	193	0	9	0	8.6	1.2
BAW	1284	2	5	2.0	-0.1	1311	0	5	0	8.3	1.2
BBB	53	4	9	1.5	-0.1	53	0	8	0	6.4	0.2
BWA	416	1	1	1.9	0.8	418	0	61	0	9.7	1.1
CAL	1753	0	1	2.2	-0.2	1755	0	2	0	9.3	0.9
CCA	249	1	63	2.9	-0.3	251	0	65	0	11.7	1.0
CDN	2555	0	2	2.2	0.2	2556	0	3	0	9.0	1.1
CES	186	0	2	2.1	0.5	186	0	1	0	8.8	0.5
CFG	1015	0	3	2.1	-1.0	1031	0	2	0	8.4	0.7
CKS	89	0	6	2.7	1.0	91	0	98	0	10.2	1.9
CKT	88	0	5	1.4	0.3	89	0	4	0	8.0	0.3
CLI	28	0	0	1.8	-0.3	27	0	4	0	8.7	-0.3
CLX	66	0	3	1.9	-0.6	67	0	6	1	6.8	1.7
CMI	1187	2	5	2.3	0.1	1199	0	4	1	9.0	0.9
CMM	228	0	4	2.5	0.0	229	0	3	0	9.3	0.8
COA	878	1	2	1.8	0.4	884	0	3	0	8.5	1.0
CPA	52	4	4	1.7	-0.7	55	0	13	2	10.2	1.1
CRL	205	0	1	1.9	-0.1	209	0	2	0	10.0	2.2
CTM	65	2	23	2.7	-2.1	65	0	22	2	9.7	3.5
CUB	148	0	5	2.1	0.9	147	0	67	0	9.8	1.7
DAL	5408	1	3	2.2	0.4	5212	0	2	0	9.0	1.0
DHL	418	3	100	4.0	-1.8	428	0	100	0	10.1	0.2
DLH	2744	1	9	1.9	0.1	2761	0	11	2	8.3	1.1
DOA	262	1	62	2.4	0.2	260	0	10	0	10.0	0.5
EIA	64	0	5	2.2	0.5	65	0	100	0	9.7	2.3
ELY	152	0	5	1.9	-0.3	155	0	59	0	8.6	1.4
EVA	1388	0	2	2.1	-0.2	1389	0	3	0	10.2	0.7
FDX	877	0	2	2.1	0.7	884	0	3	0	8.6	1.2
FIN	349	0	2	1.9	0.3	347	0	2	1	7.2	0.4
FJI	491	0	2	2.0	1.1	489	0	65	0	8.1	1.6
FKC	41	2	5	1.8	-0.8	41	0	7	5	7.7	1.7
FKE	31	0	3	2.8	-1.5	32	0	0	0	8.1	1.3
FMN	36	0	3	2.3	1.0	36	0	0	0	7.9	1.7

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	24	0	0	1.7	1.0	25	0	0	0	7.3	-0.1
GFA	40	0	0	1.8	0.2	41	0	0	0	6.8	0.8
GHA	81	1	4	1.6	-0.3	81	0	5	0	8.1	1.6
GIA	294	2	4	2.1	0.1	292	0	0	0	6.8	1.4
HAL	1373	0	1	1.8	0.1	1383	0	2	0	9.5	1.2
HLF	128	1	2	2.6	-1.0	128	0	2	0	9.6	0.5
HRH	29	3	10	2.1	1.0	28	0	7	0	9.6	4.7
IBE	2020	1	13	1.9	0.0	2006	0	68	0	10.0	0.6
ICE	470	0	2	1.7	0.1	470	0	2	0	6.8	0.4
JAA	59	0	3	2.5	1.4	59	0	3	0	11.0	1.5
JAL	6544	0	1	2.0	0.3	6552	0	2	0	9.1	0.8
JAZ	34	0	0	1.9	1.4	34	0	6	0	13.9	-0.5
KAL	3810	1	2	2.3	0.2	3808	0	2	0	9.3	1.0
KLM	2096	1	2	1.9	0.2	2086	0	2	0	8.1	1.2
LDA	215	0	6	2.0	-1.1	215	0	5	0	7.5	0.9
LDI	230	1	5	2.6	-1.7	234	0	4	0	8.9	0.2
LIB	222	1	3	1.9	0.2	223	0	4	1	9.2	0.7
LOT	399	1	2	1.8	-0.1	400	0	3	0	7.8	-0.4
LTU	886	1	3	2.0	0.3	855	0	3	0	9.4	0.7
MAS	295	1	1	2.1	-0.3	292	0	56	0	11.1	1.0
MDA	155	0	2	2.6	1.3	156	0	1	0	7.4	1.4
MKD	59	0	0	1.7	-0.7	62	0	2	0	10.0	1.6
MPH	613	0	3	1.9	-0.5	600	0	2	0	8.3	1.2
MRS	51	25	45	5.5	-3.9	52	0	19	0	12.7	6.2
NCA	701	0	2	2.2	0.6	699	0	3	0	9.8	0.8
NGA	99	0	0	1.4	0.2	99	0	100	1	11.1	2.6
NWA	9964	1	2	2.2	0.7	9990	0	3	0	9.2	1.0
OAL	32	0	0	2.6	2.0	33	0	3	0	12.3	4.5
PAC	53	2	4	2.5	-0.1	60	0	5	0	10.4	1.5
PAL	1047	1	4	2.6	0.5	1057	0	90	1	10.5	1.0
PAO	301	3	3	1.6	0.0	296	0	1	0	7.6	1.4
PIA	23	0	0	1.6	-0.1	25	0	4	0	10.4	2.1
PNL	89	1	3	2.2	1.0	88	0	1	0	7.4	0.3
QFA	2227	1	1	1.8	0.1	2211	0	2	1	7.6	1.0
RAF	175	0	1	1.6	0.3	174	0	6	1	11.1	2.0
RIA	92	7	12	3.1	1.6	93	0	10	0	12.8	2.6
RJA	64	2	2	2.7	1.2	66	0	3	0	8.2	0.4
RON	59	2	3	1.2	0.5	59	0	5	3	8.1	0.8
RRR	83	4	17	2.0	0.5	84	0	100	2	9.3	0.2
SAA	200	1	1	1.9	-1.1	200	0	3	1	8.9	1.6
SAB	67	1	1	1.8	0.2	70	0	1	0	7.1	0.7
SAS	1191	0	1	1.9	-0.1	1187	0	2	1	7.6	0.5
SIA	1214	0	2	2.2	-0.5	1217	0	60	0	9.8	0.7
SOL	46	2	7	2.5	0.1	45	0	4	2	8.4	1.5
SPP	283	1	8	1.8	-0.5	278	0	7	0	9.3	0.5
SVA	126	0	2	1.8	0.3	137	1	4	1	7.6	0.2
SWR	172	1	3	1.9	0.1	173	0	3	0	8.6	0.4
TAP	474	1	6	1.8	-0.1	472	0	7	0	9.2	1.4
TEJ	28	0	18	2.5	0.7	30	3	17	0	11.9	2.6
THA	329	0	3	2.2	-0.7	328	1	59	0	9.9	0.6
TIH	75	0	4	1.3	-0.4	75	0	5	0	10.1	1.3
TOW	62	0	8	2.6	0.7	62	0	100	0	9.8	1.4
TWA	1248	0	2	2.0	0.4	1259	0	3	0	9.3	0.8
UAL	74731	1	3	1.8	0.1	74798	0	3	0	8.2	0.9
ULE	73	0	3	2.1	-0.3	74	0	1	0	8.4	1.3
UPS	942	1	10	1.9	-0.3	946	0	10	0	8.4	1.0
USA	202	0	3	1.7	-0.1	204	0	2	0	7.4	2.0
USF	81	0	1	1.6	-0.5	84	0	0	0	7.7	1.3
VIA	616	0	1	1.5	0.6	630	0	4	1	8.6	1.5

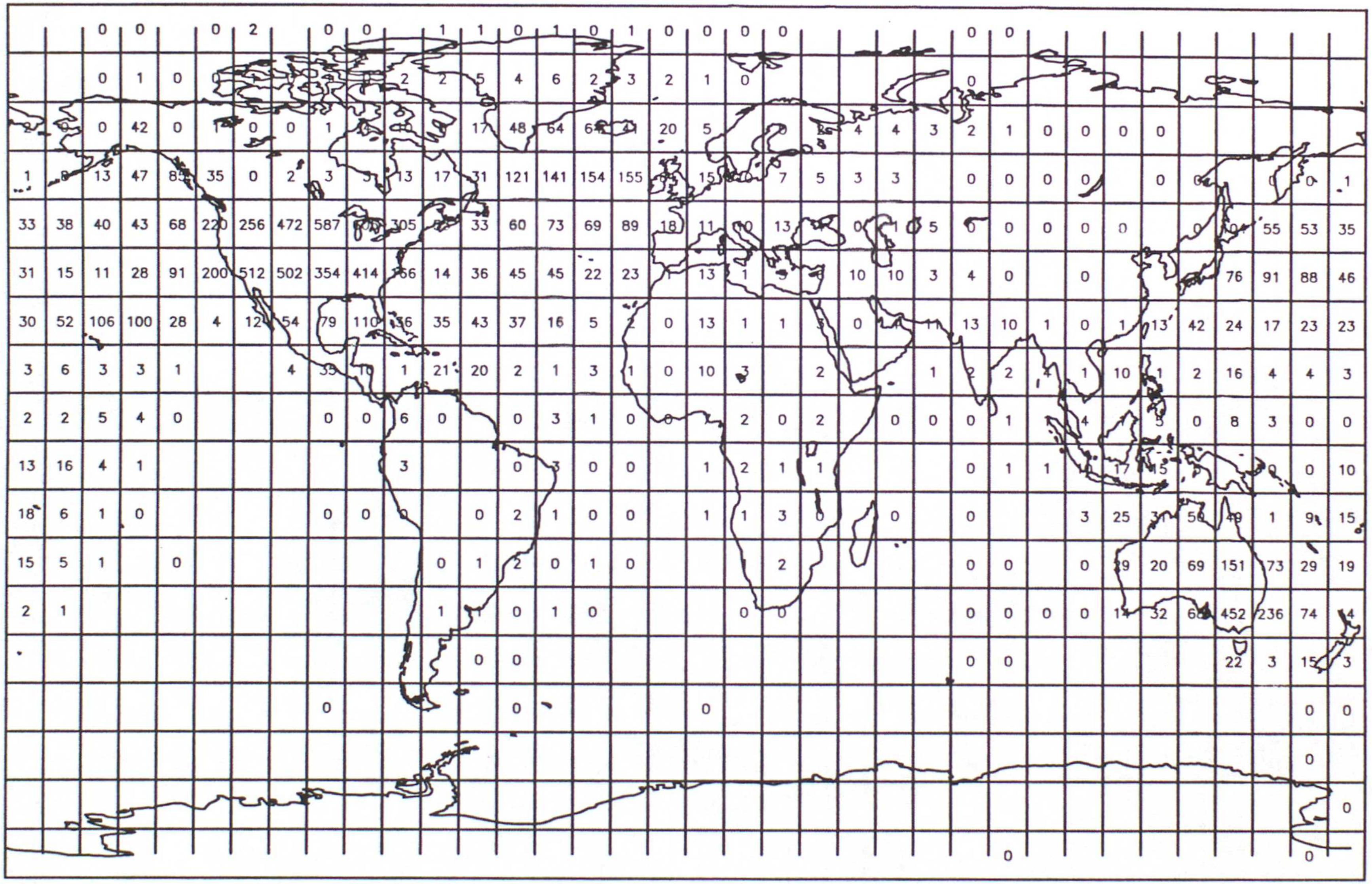
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
VIR	138	0	1	1.8	-0.2	148	0	67	1	8.1	1.9
VRB	22	5	5	2.4	0.9	23	0	13	9	10.3	4.4
VRG	68	1	4	2.5	0.5	69	0	3	0	9.2	-0.5
VSP	100	1	4	2.7	0.1	100	1	4	0	8.7	0.1
WOA	41	7	15	1.9	0.4	42	0	12	0	8.9	0.9
AN	28412	0	1	1.4	0.2	28088	0	1	0	6.3	0.9
BA	17591	0	16	1.7	0.6	17567	0	16	0	7.6	1.3
DL	995	1	99	3.3	0.1	995	56	99	0	45.0	-0.9
FJ	35	0	0	2.2	1.7	35	0	0	0	9.7	3.5
KL	5642	0	46	2.2	1.1	5639	0	30	0	7.7	1.6
LH	2192	0	3	1.8	0.0	2176	0	64	1	8.4	1.5
NW	49872	0	1	1.8	0.3	49873	0	1	0	7.3	1.2
QF	10328	0	1	1.3	0.3	10305	0	1	0	6.4	1.0
M	304	3	58	3.4	1.1	314	1	55	0	11.6	2.5
N	310	0	2	2.5	0.8	324	0	3	0	9.3	1.3

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

FIGURE 3

DECEMBER 1994

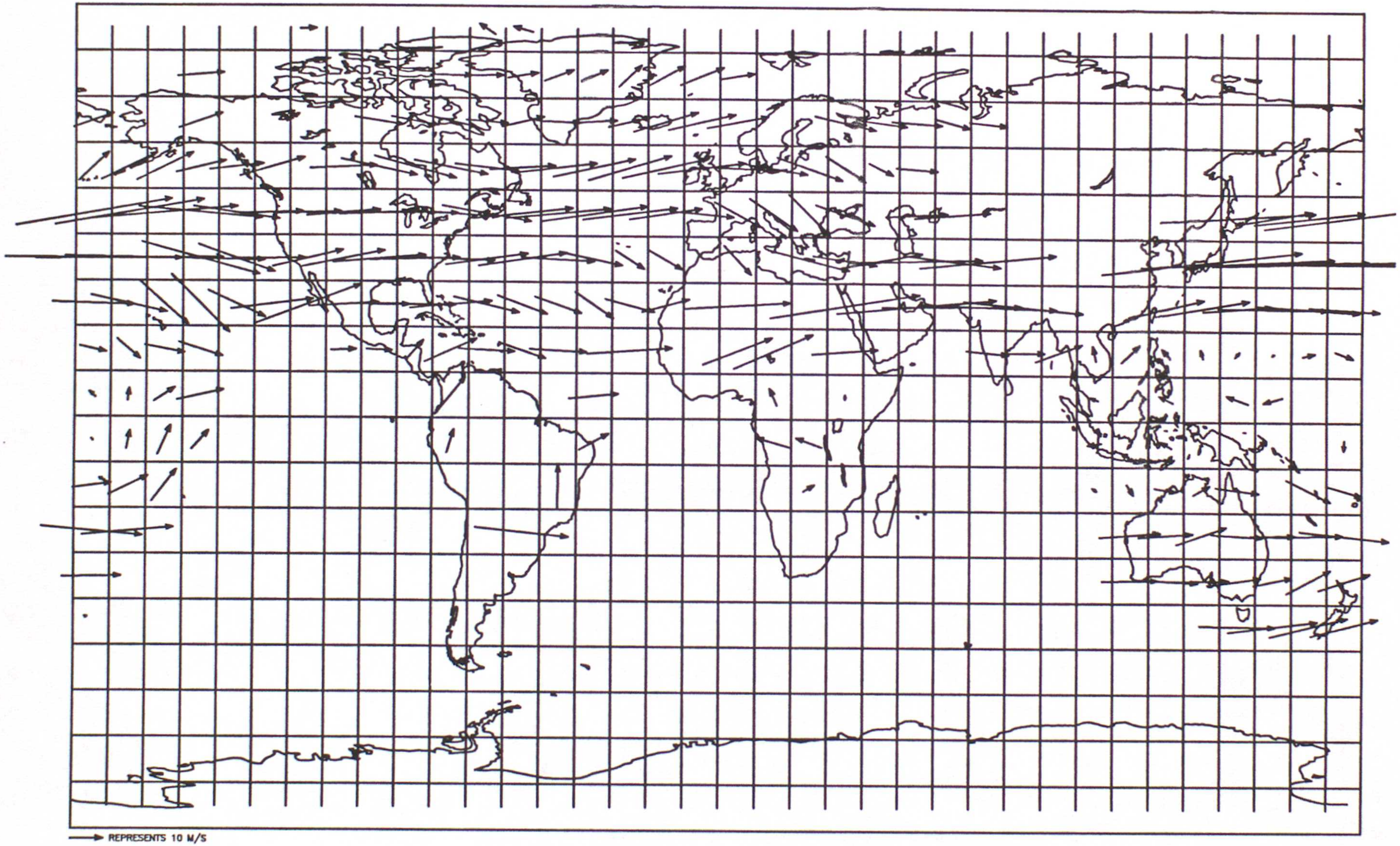
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED



		0	0		0	2		0	0		1	1	0	1	0	1	0	0	0	0					0	0									
		0	1	0	0	[illegible]	[illegible]	[illegible]	[illegible]	2	2	5	4	6	2	3	2	1	0						0										
2	[illegible]	0	42	0	1	0	0	1	[illegible]	[illegible]	[illegible]	17	48	64	[illegible]	41	20	5		[illegible]	[illegible]	4	4	3	2	1	0	0	0	0					
1	8	13	47	85	35	0	2	3	5	13	17	31	121	141	154	155	[illegible]	15	[illegible]	7	5	3	3		0	0	0	0		0	0		0	0	1
33	38	40	43	68	220	256	472	587	[illegible]	305	[illegible]	33	60	73	69	89	18	11	10	13	[illegible]	0	1	5	0	0	0	0	0		0	[illegible]	55	53	35
31	15	11	28	91	200	512	502	354	414	[illegible]	14	36	45	45	22	23	1	13	1	[illegible]	[illegible]	10	10	3	4	0		0				76	91	88	46
30	52	106	100	28	4	12	54	79	110	[illegible]	35	43	37	16	5	2	0	13	1	1	3	0	[illegible]	11	13	10	1	0	1	13	42	24	17	23	23
3	6	3	3	1			4	35	10	1	21	20	2	1	3	1	0	10	3		2			1	2	2	4	1	10	1	2	16	4	4	3
2	2	5	4	0				0	0	6	0		0	3	1	0	0		2	0	2		0	0	0	1	[illegible]	4	[illegible]	[illegible]	0	8	3	0	0
13	16	4	1							3			0	3	0	0		1	2	1	1				0	1	1	[illegible]	17	15	[illegible]		0	0	10
18	6	1	0					0	0	0		0	2	1	0	0		1	1	3	0		0		0			3	25	31	[illegible]	49	1	9	15
15	5	1		0							0	1	2	0	1	0				2					0	0		0	[illegible]	20	69	151	73	29	19
2	1										1	1	0	1	0				0	0					0	0	0	0	[illegible]	32	[illegible]	452	236	74	[illegible]
												0	0												0	0						22	3	15	3
								0					0					0																0	0
																																		0	
																																			0
																										0								0	

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA
DECEMBER 1994
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4



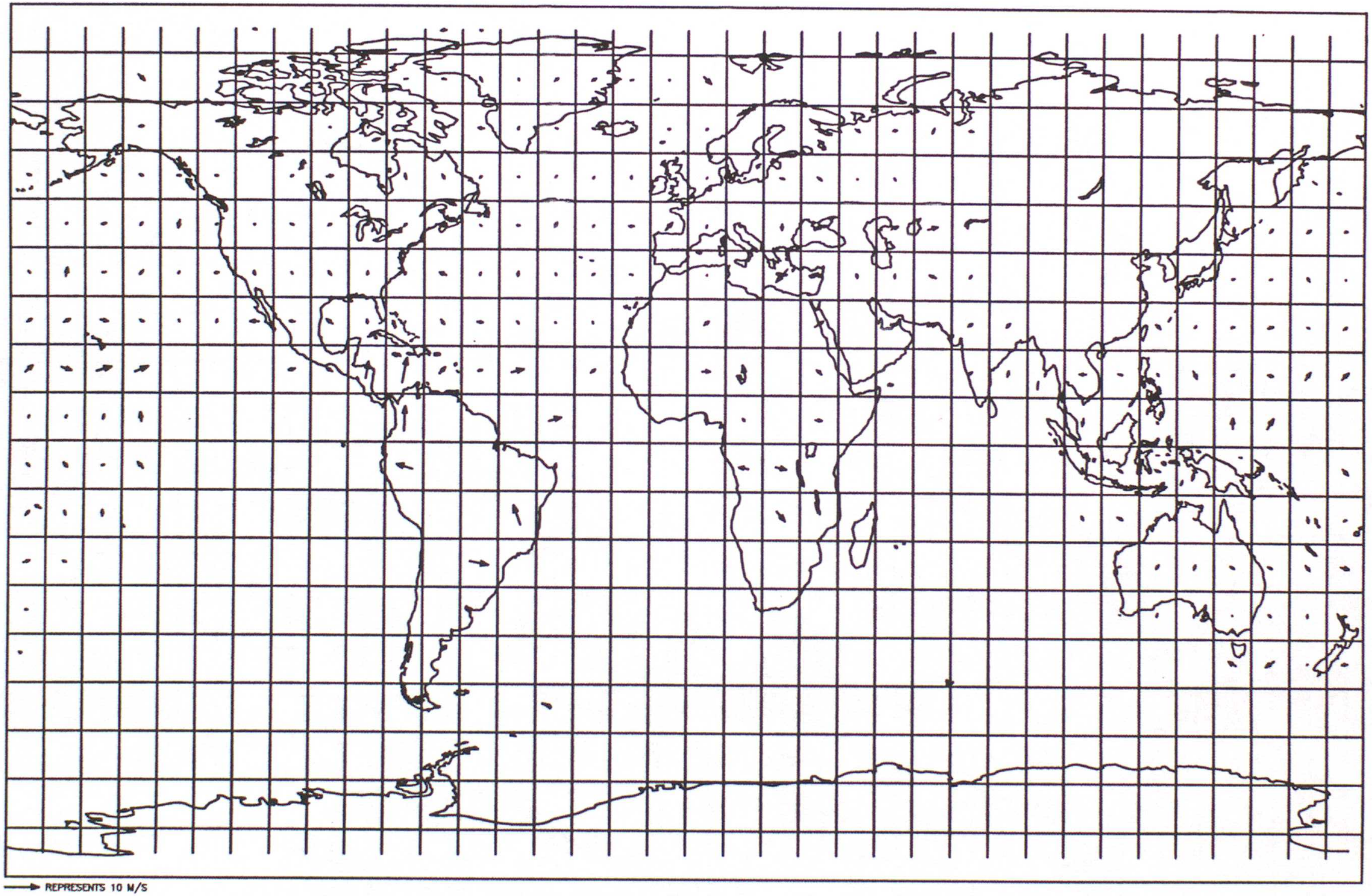
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

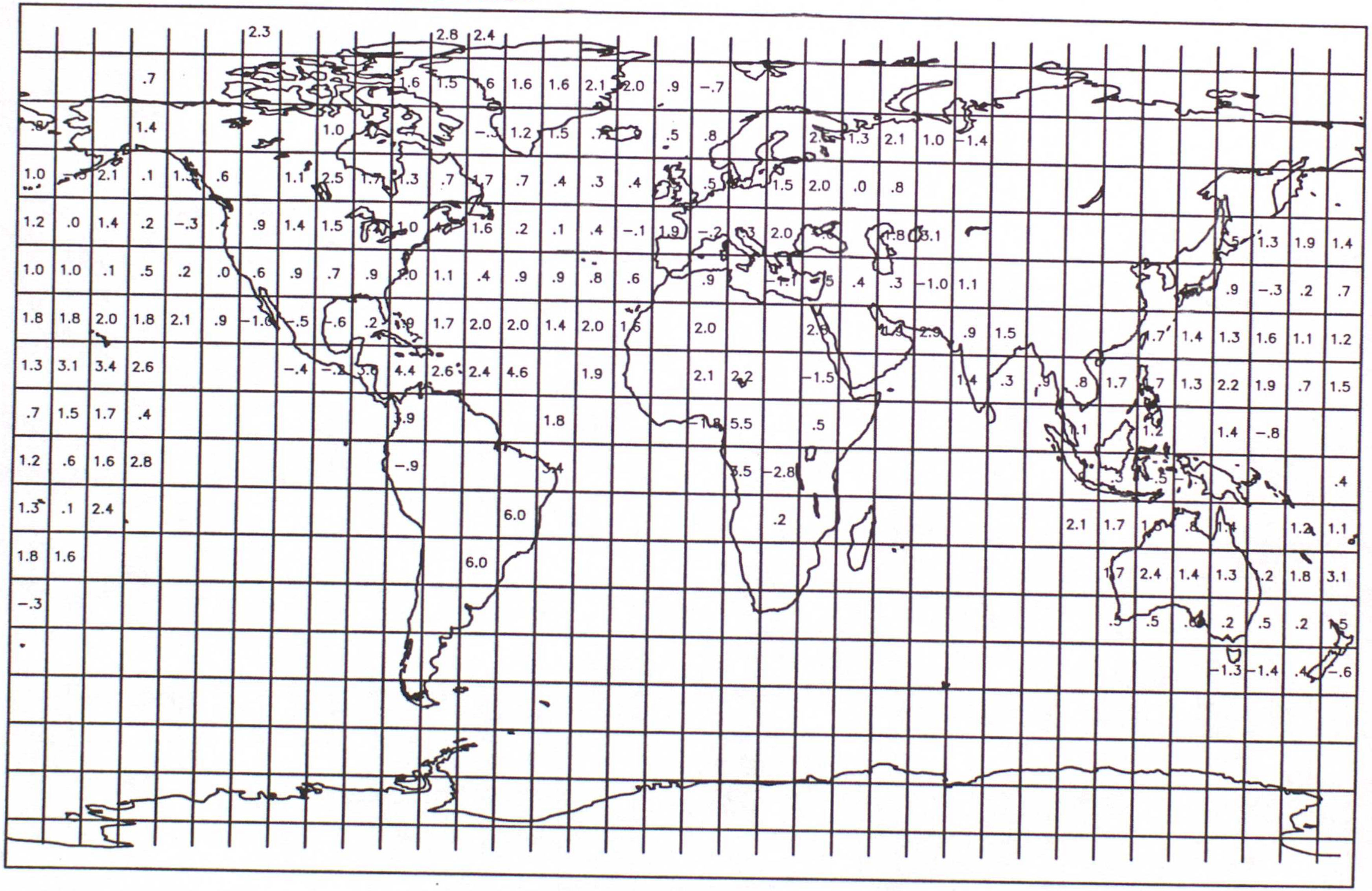
DECEMBER 1994

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
DECEMBER 1994
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


2.3 2.8 2.4
.7 1.6 1.5 1.6 1.6 1.6 2.1 2.0 .9 –.7
.8 1.4 1.0 –.3 1.2 1.5 .7 .5 .8 2.5 1.3 2.1 1.0 –1.4
1.0 –.3 2.1 .1 1.3 .6 1.1 2.5 1.7 1.3 .7 1.7 .7 .4 .3 .4 .5 1.5 2.0 .0 .8
1.2 .0 1.4 .2 –.3 .1 .9 1.4 1.5 1.2 1.0 1.6 .2 .1 .4 –.1 1.9 –.2 .3 2.0 .6 1.8 3.1 .5 1.3 1.9 1.4
1.0 1.0 .1 .5 .2 .0 .6 .9 .7 .9 1.0 1.1 .4 .9 .9 .8 .6 .9 –.1 .5 .4 .3 –1.0 1.1 .9 –.3 .2 .7
1.8 1.8 2.0 1.8 2.1 .9 –1.6 –.5 –.6 .2 1.9 1.7 2.0 2.0 1.4 2.0 1.6 2.0 2.8 1.3 2.9 .9 1.5 1.7 1.4 1.3 1.6 1.1 1.2
1.3 3.1 3.4 2.6 –.4 –.2 3.6 4.4 2.6 2.4 4.6 1.9 2.1 2.2 –1.5 1.4 .3 .9 .8 1.7 .7 1.3 2.2 1.9 .7 1.5
.7 1.5 1.7 .4 3.9 1.8 1.8 5.5 .5 .1 1.2 1.4 –.8
1.2 .6 1.6 2.8 –.9 3.4 3.5 –2.8 .3 .5 .4
1.3 .1 2.4 6.0 .2 2.1 1.7 1.8 .8 1.4 1.2 1.1
1.8 1.6 6.0 1.7 2.4 1.4 1.3 .2 1.8 3.1
–.3 .5 .5 .6 .2 .5 .2 .5
–1.3 –1.4 .4 –.6

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
DECEMBER 1994
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

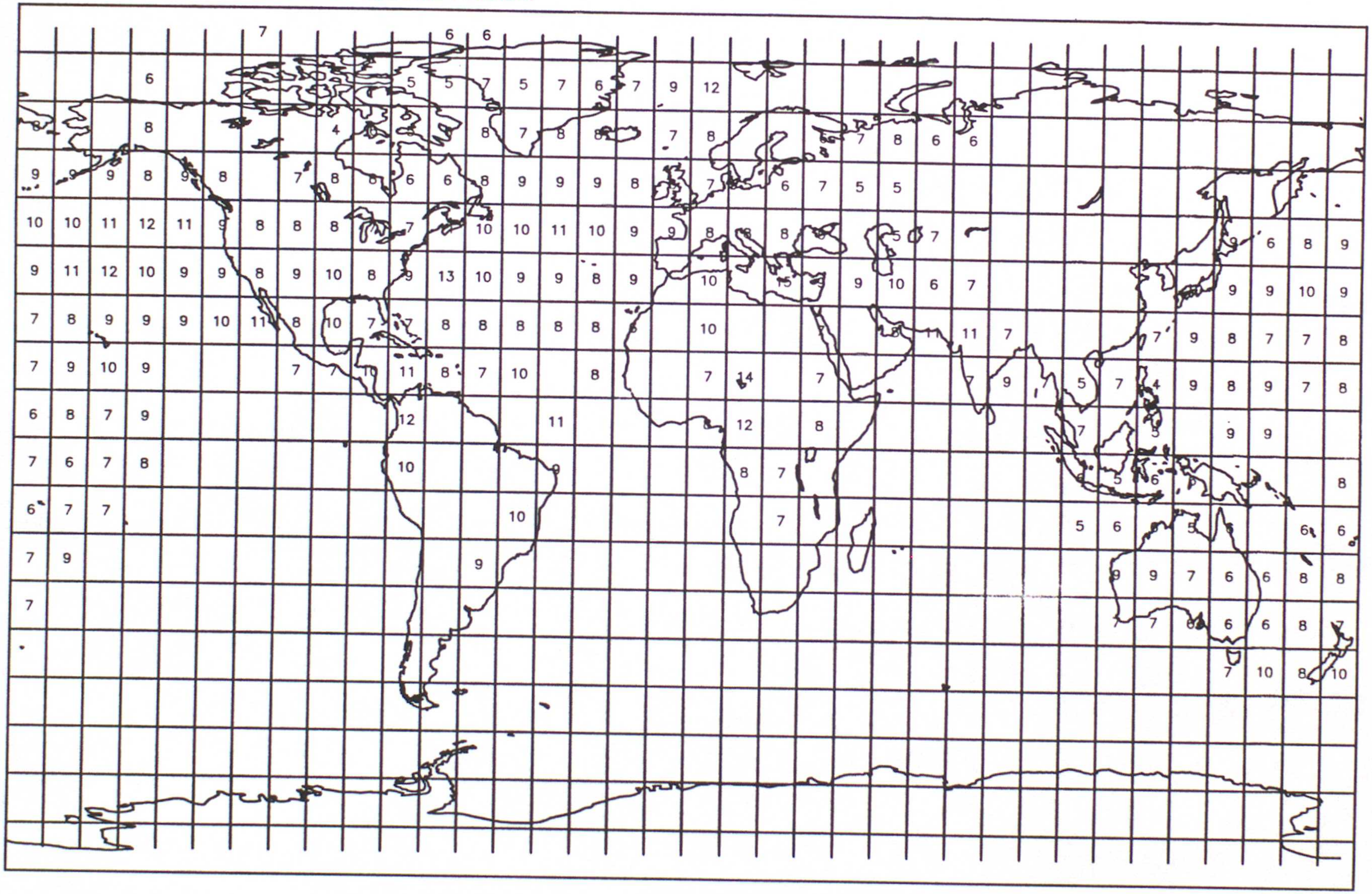


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	:≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
22820	12	Z	200	62/ 34	24	0	34.9	74.3	82.1	5
26702	12	Z	50	55/ 21	20	0	69.4	134.6	151.4	4
41977	00	Z	200	22/ 92	18	0	49.3	-76.2	90.7	5
42314	00	Z	150	27/ 95	17	0	110.7	-112.3	157.7	10
42314	12	Z	150	27/ 95	14	1	72.8	-133.7	152.3	8
42339	00	Z	250	26/ 73	20	1	93.6	-10.8	94.2	5
42339	12	Z	200	26/ 73	18	0	77.1	13.4	78.2	4
42361	00	Z	300	26/ 78	12	0	71.8	-40.3	82.3	5
42361	12	Z	200	26/ 78	17	0	72.6	-51.6	89.1	4
42369	12	Z	200	27/ 81	22	0	93.4	-27.7	97.4	7
42379	00	Z	50	27/ 83	13	1	121.3	-89.6	150.8	4
42379	12	Z	200	27/ 83	17	0	87.4	-74.1	114.5	11
42397	00	Z	200	27/ 88	12	1	101.2	-40.0	108.8	6
42397	12	Z	250	27/ 88	11	0	90.6	-50.2	103.6	5
42410	00	Z	70	26/ 92	20	1	145.8	86.5	169.5	8
42410	12	Z	30	26/ 92	9	1	251.9	-31.1	253.9	7
42492	12	Z	200	26/ 85	17	0	76.6	-66.6	101.5	4
42647	00	Z	150	23/ 73	18	1	130.3	-38.1	135.7	8
42647	12	Z	50	23/ 73	12	0	145.7	124.8	191.8	6
42701	00	Z	200	23/ 85	14	0	81.4	-4.5	81.5	4
42971	00	Z	50	20/ 86	13	0	183.7	63.5	194.4	6
42971	12	Z	100	20/ 86	20	0	140.2	-43.8	146.9	6
43003	00	Z	150	19/ 73	25	0	76.4	-67.4	101.8	6
43014	00	Z	250	20/ 75	22	1	83.2	-49.3	96.7	5
43014	12	Z	150	20/ 75	17	0	93.6	-26.4	97.2	4
43041	00	Z	200	19/ 82	11	0	75.8	-57.8	95.4	4
43128	00	Z	200	17/ 78	24	0	109.7	-38.4	116.3	8
43128	12	Z	30	17/ 78	16	1	206.7	227.7	307.5	8
43150	12	Z	200	18/ 83	21	0	81.6	66.1	105.0	4
43185	00	Z	150	16/ 81	21	0	96.1	-58.2	112.3	5
43185	12	Z	100	16/ 81	10	0	178.3	19.7	179.3	6
43192	00	Z	150	15/ 74	25	1	99.0	-78.2	126.2	6
43279	00	Z	150	13/ 80	27	0	74.1	-76.0	106.1	5
43285	00	Z	100	13/ 75	16	3	112.5	-79.3	137.6	7
43285	12	Z	30	13/ 75	11	0	152.1	176.8	233.2	7
43295	00	Z	50	13/ 78	12	0	121.7	160.9	201.8	4
43346	00	Z	200	11/ 80	26	0	90.5	-32.5	96.2	8
43346	12	Z	30	11/ 80	14	1	169.9	126.6	211.9	5
43353	00	Z	100	10/ 76	22	1	142.1	-49.9	150.6	4
43369	00	Z	70	8/ 73	16	2	149.3	-84.1	171.3	6
43369	12	Z	100	8/ 73	17	1	150.4	-56.4	160.6	7
43371	12	Z	150	8/ 77	14	0	151.8	29.6	154.6	7
44373	12	Z	200	44/ 104	6	5	58.2	169.7	179.4	5
54497	12	Z	70	40/ 124	20	0	71.7	121.3	140.9	5
57957	12	Z	100	25/ 110	31	0	32.9	107.1	112.1	4
60360	12	Z	300	37/ 8	1	12	0.0	-169.0	169.0	5
62306	12	Z	50	31/ 27	11	0	53.7	305.3	310.0	6
62378	12	Z	30	30/ 31	9	4	62.5	381.9	387.0	5
83746	12	Z	200	-23/ -43	29	0	56.8	52.0	77.0	4
96163	00	Z	150	-1/ 100	14	1	119.6	-4.9	119.7	8

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – DECEMBER 1994
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1392

FIGURE 8

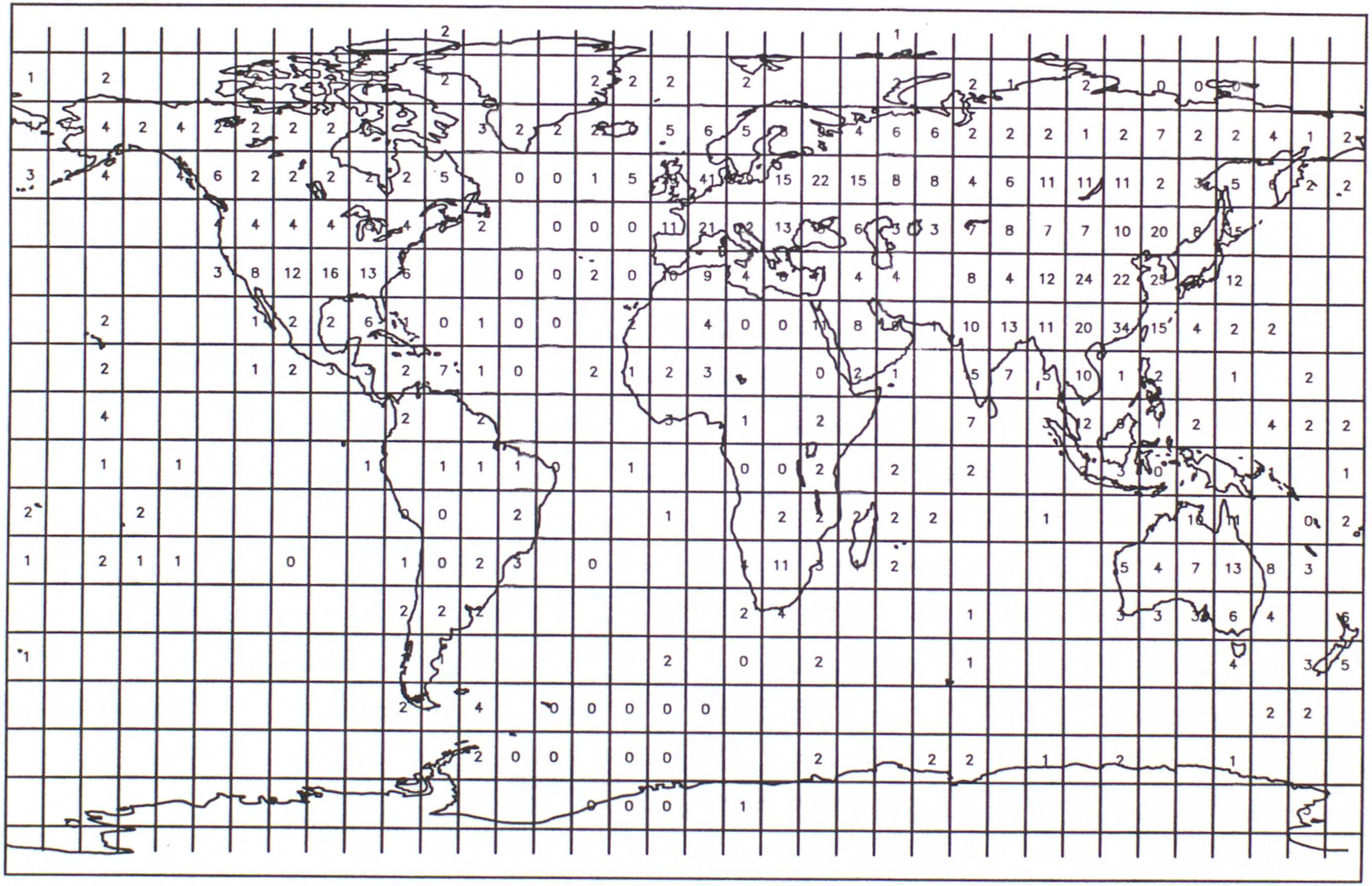


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : $\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
37985	00	V	250	39/ 49	12	0	25	-12.8	-1.8	17.8	1
41530	00	V	200	34/ 72	10	1	18	-1.4	-0.5	26.5	3
41977	00	V	150	22/ 92	17	0	17	3.8	6.2	20.6	2
42182	12	V	200	29/ 77	18	0	5	-11.8	-1.9	17.0	1
42369	12	V	200	27/ 81	20	0	5	-11.1	2.3	16.6	1
42397	00	V	200	27/ 88	11	0	9	-13.0	2.6	17.3	3
42397	12	V	250	27/ 88	10	0	10	-11.1	7.1	16.2	1
42410	00	V	200	26/ 92	15	1	25	-9.3	8.6	15.8	2
42410	12	V	250	26/ 92	10	0	10	-7.2	-0.8	20.4	1
47158	00	V	150	35/ 127	27	0	18	-11.3	-7.1	16.3	1
54497	12	V	150	40/ 124	25	0	16	0.8	4.0	15.4	1
62124	12	V	200	27/ 14	10	0	20	1.5	-5.5	19.0	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – DECEMBER 1994

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1224

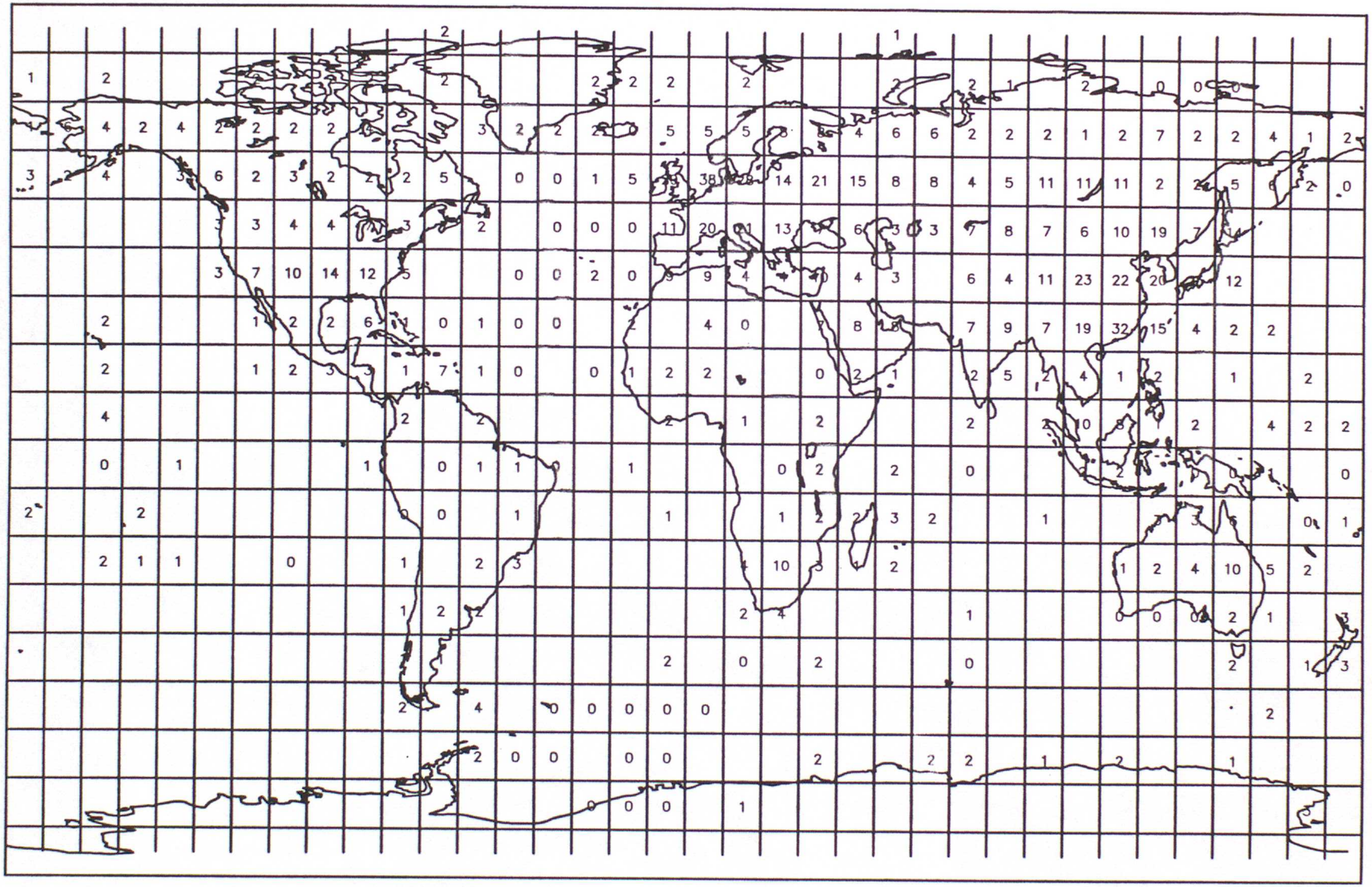

2 1
1 2 2 2 2 2 2 2 2 1 2 0 0 0
4 2 4 2 2 2 2 3 2 2 2 5 5 5 4 6 6 2 2 2 1 2 7 2 2 4 1 2
3 4 3 6 2 3 2 2 2 5 0 0 1 5 38 28 14 21 15 8 8 4 5 11 11 11 2 2 5 2 0
3 3 4 4 3 2 0 0 0 11 20 21 13 6 3 3 7 8 7 6 10 19 7
3 7 10 14 12 5 0 0 2 0 9 9 4 0 4 3 6 4 11 23 22 20 12
2 1 2 2 6 1 0 1 0 0 2 4 0 7 8 8 7 9 7 19 32 15 4 2 2
2 1 2 3 3 1 7 1 0 0 1 2 2 0 2 1 2 5 2 4 1 2 1 2
4 2 2 1 2 2 2 10 8 1 2 4 2 2
0 1 1 0 1 1 0 1 0 2 2 0 2 1 0
2 2 0 0 1 1 1 2 2 3 2 1 3 6 0 1
2 1 1 0 1 2 3 4 10 3 1 2 1 2 4 10 5 2
1 2 2 2 4 1 0 0 0 2 1 3
2 0 2 0 2 1 3
2 4 0 0 0 0 0 2
2 0 0 0 0 2 2 2 1 2 1
0 0 0 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.
SELECTION CRITERIA	:NUM OBS ≥ 5, and ABSOLUTE BIAS ≥ 10°, with SD < 30°, and MAX SPREAD < 10°	

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	00	DD	38/ 40	29	-10.5	0.9	7.8
24641	00	DD	64/ 122	26	12.4	5.5	12.8
24641	12	DD	64/ 122	24	13.2	2.6	12.6
25399	00	DD	66/-170	9	10.9	1.6	8.3
31873	00	DD	46/ 134	26	19.6	7.6	9.0
31873	12	DD	46/ 134	25	20.7	4.6	7.9
32165	12	DD	44/ 146	10	-32.0	2.2	10.3
41024	00	DD	22/ 39	30	-12.4	3.7	15.6
42339	00	DD	26/ 73	19	15.2	4.5	8.1
42339	12	DD	26/ 73	19	13.9	4.2	10.0
42410	00	DD	26/ 92	20	-10.7	8.7	21.8
42724	12	DD	24/ 91	6	-10.1	8.4	8.4
42867	00	DD	21/ 79	29	-12.5	3.0	10.5
48327	00	DD	19/ 99	13	-27.3	5.4	15.7
48407	00	DD	15/ 105	21	-17.2	4.2	22.4
48565	00	DD	8/ 98	12	-11.3	9.7	20.6
53772	00	DD	38/ 113	30	-11.1	3.6	7.4
53772	12	DD	38/ 113	29	-11.1	5.6	9.6
58606	00	DD	29/ 116	30	-11.6	0.7	8.6
58606	12	DD	29/ 116	28	-12.4	2.5	6.9
60571	12	DD	32/ -2	29	10.9	7.2	17.0
60630	12	DD	27/ 2	23	14.3	4.6	16.9
62124	12	DD	27/ 14	10	11.2	6.3	25.7
76723	00	DD	19/-111	15	10.1	8.0	19.5
76723	12	DD	19/-111	15	11.1	7.5	20.1
78384	12	DD	19/ -81	17	-12.1	6.9	17.8
78866	12	DD	18/ -63	18	16.7	7.5	17.5
81405	12	DD	5/ -52	18	-14.8	9.9	26.8

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

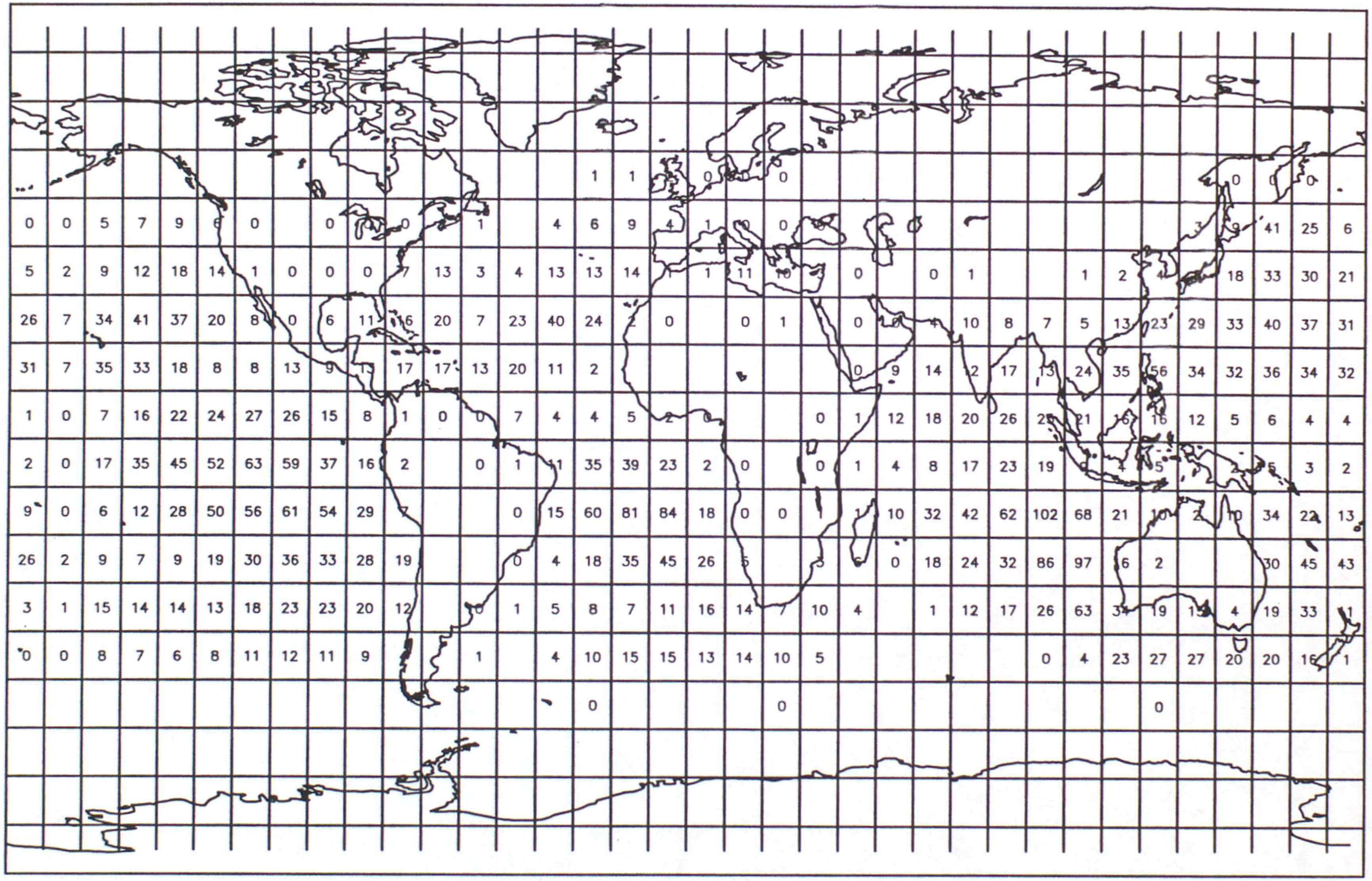
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

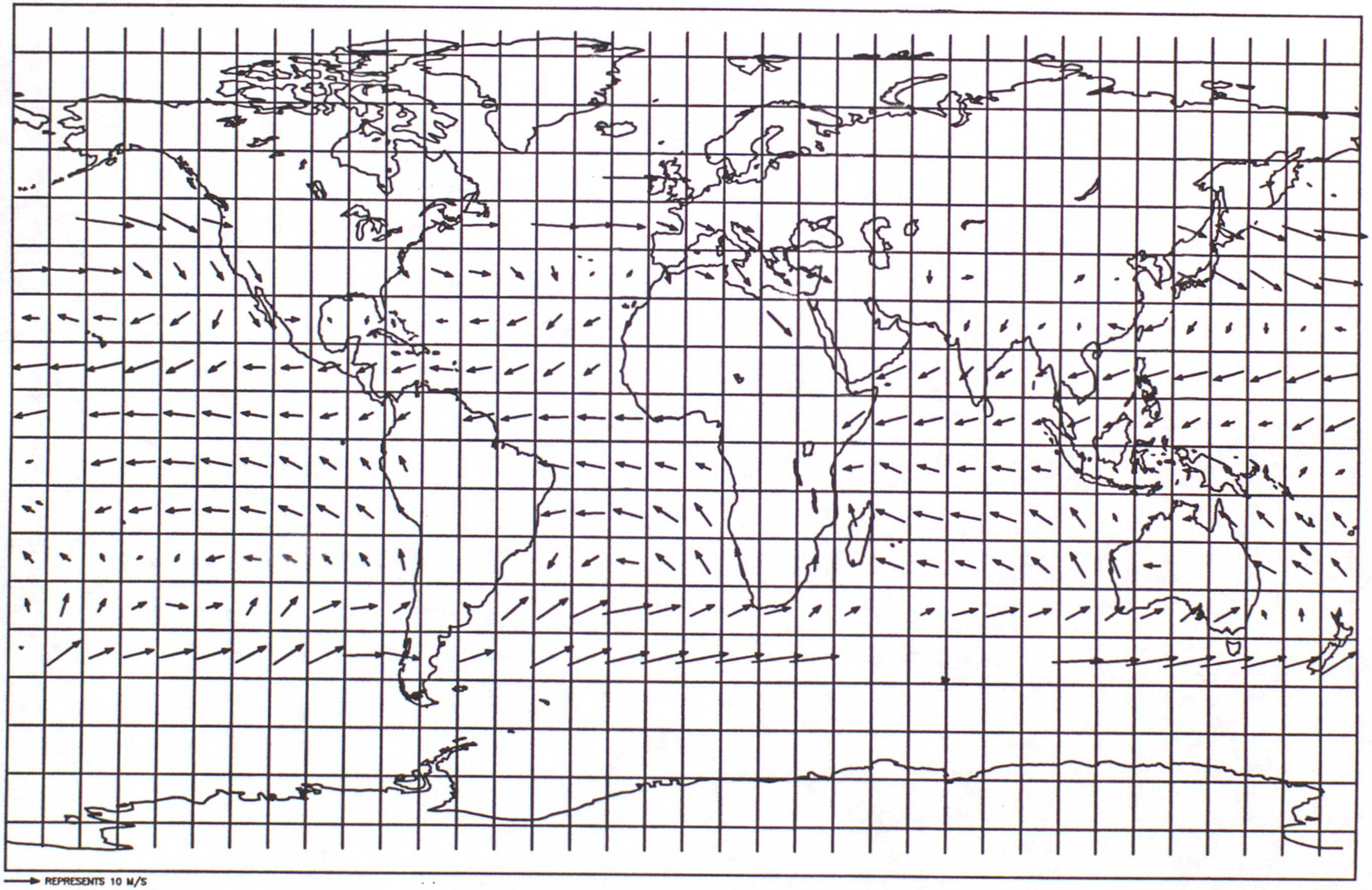
:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
DECEMBER 1994


1 1 0 0 0 0 0 0
0 0 5 7 9 6 0 0 0 0 1 4 6 9 4 1 0 0 3 9 41 25 6
5 2 9 12 18 14 1 0 0 0 7 13 3 4 13 13 14 1 1 11 10 0 0 1 1 2 4 18 33 30 21
26 7 34 41 37 20 8 0 6 11 16 20 7 23 40 24 2 0 0 1 0 0 4 10 8 7 5 13 23 29 33 40 37 31
31 7 35 33 18 8 8 13 9 13 17 17 13 20 11 2 0 9 14 12 17 13 24 35 56 34 32 36 34 32
1 0 7 16 22 24 27 26 15 8 1 0 0 7 4 4 5 2 0 0 1 12 18 20 26 25 21 16 16 12 5 6 4 4
2 0 17 35 45 52 63 59 37 16 2 0 1 11 35 39 23 2 0 0 1 4 8 17 23 19 4 5 2 5 3 2
9 0 6 12 28 50 56 61 54 29 7 0 15 60 81 84 18 0 0 1 1 10 32 42 62 102 68 21 10 2 10 34 22 13
26 2 9 7 9 19 30 36 33 28 19 0 4 18 35 45 26 5 3 6 0 18 24 32 86 97 6 2 30 45 43
3 1 15 14 14 13 18 23 23 20 12 0 1 5 8 7 11 16 14 7 10 4 1 12 17 26 63 34 19 13 4 19 33 1
0 0 8 7 6 8 11 12 11 9 1 4 10 15 15 13 14 10 5 0 4 23 27 27 20 20 16 1
0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
DECEMBER 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

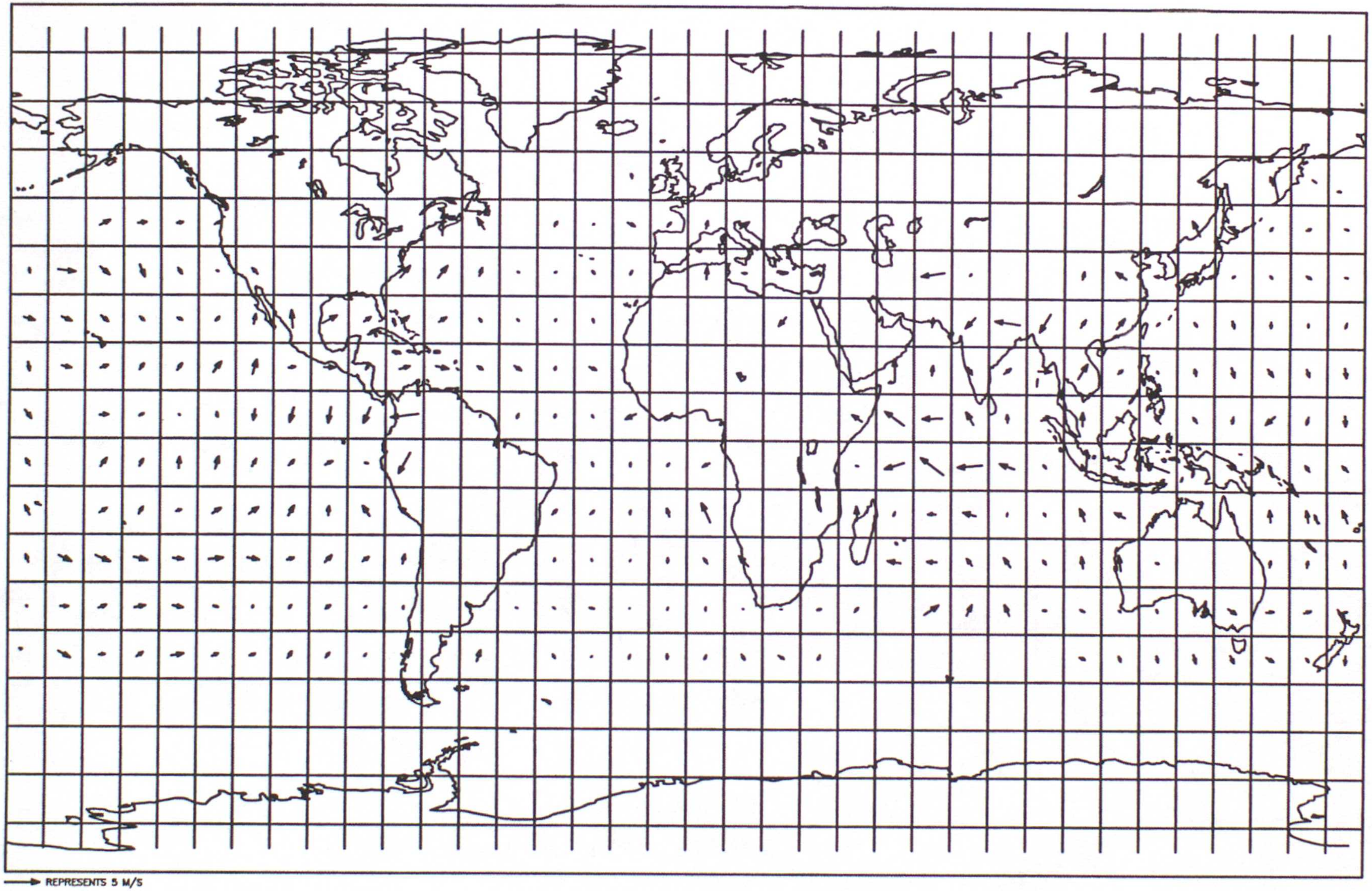
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

FIGURE 12

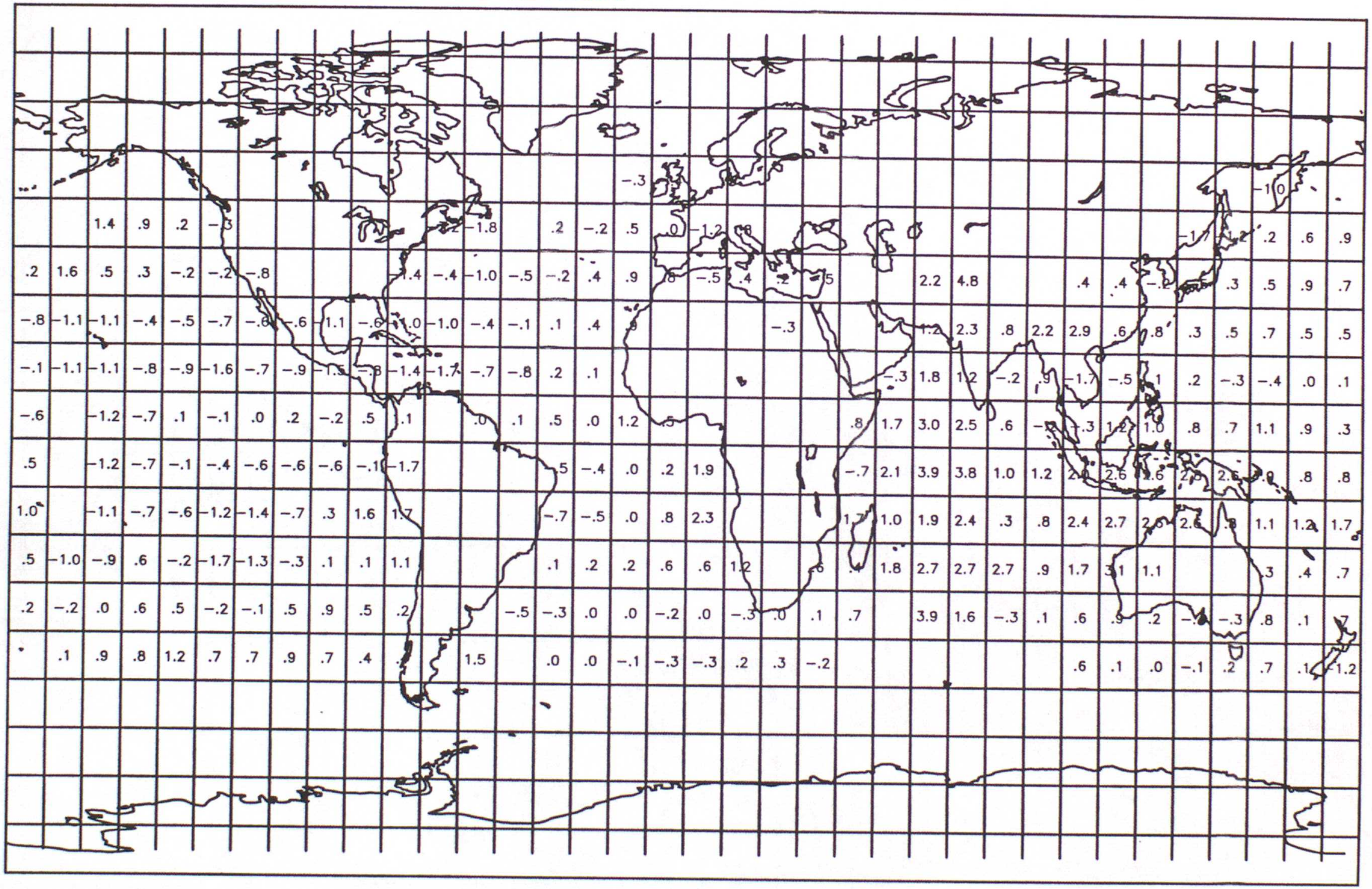
DECEMBER 1994

ALL OBSERVATIONS

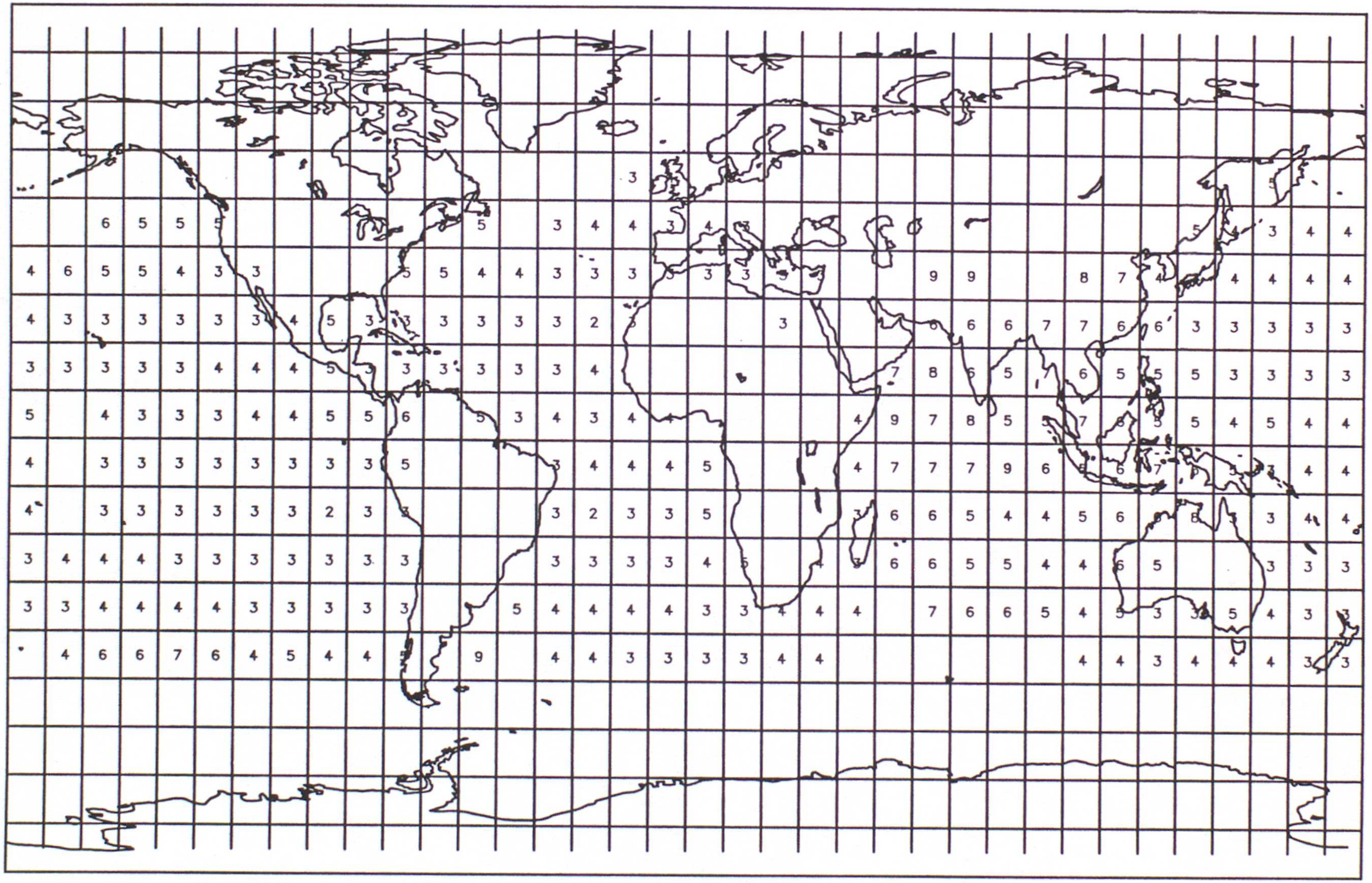
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



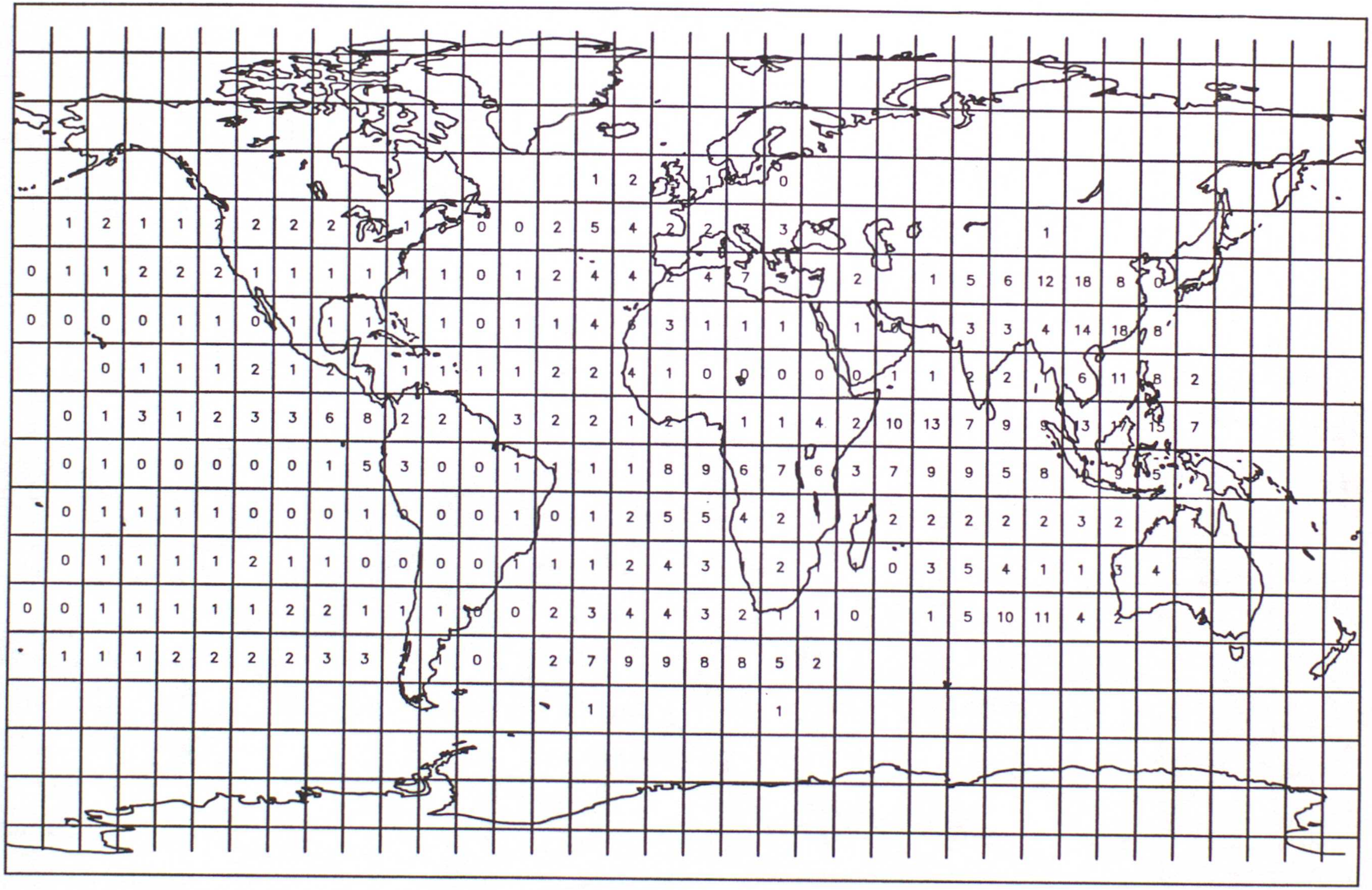
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


–.3 –1.0
1.4 .9 .2 –.3 –2.2 –1.8 .2 –.2 .5 .0 –1.2 .8 –1.7 –1.2 .2 .6 .9
.2 1.6 .5 .3 –.2 –.2 –.8 –1.4 –.4 –1.0 –.5 –.2 .4 .9 .8 –.5 .4 .2 .5 2.2 4.8 .4 .4 –.2 .3 .5 .9 .7
–.8 –1.1 –1.1 –.4 –.5 –.7 –.6 –.6 1.1 –.6 –1.0 –1.0 –.4 –.1 .1 .4 .9 –.3 –1.2 2.3 .8 2.2 2.9 .6 .8 .3 .5 .7 .5 .5
–.1 –1.1 –1.1 –.8 –.9 –1.6 –.7 –.9 –1.5 –.8 –1.4 –1.7 –.7 –.8 .2 .1 –.3 1.8 1.2 –.2 .9 –1.7 –.5 .1 .2 –.3 –.4 .0 .1
–.6 –1.2 –.7 .1 –.1 .0 .2 –.2 .5 .1 .0 .1 .5 .0 1.2 .5 .8 1.7 3.0 2.5 .6 –.3 –.3 1.2 1.0 .8 .7 1.1 .9 .3
.5 –1.2 –.7 –.1 –.4 –.6 –.6 –.6 –.1 –1.7 .5 –.4 .0 .2 1.9 –.7 2.1 3.9 3.8 1.0 1.2 2.6 2.6 2.6 2.5 2.6 .9 .8 .8
1.0 –1.1 –.7 –.6 –1.2 –1.4 –.7 .3 1.6 1.7 –.7 –.5 .0 .8 2.3 1.7 1.0 1.9 2.4 .3 .8 2.4 2.7 2.6 2.6 .8 1.1 1.2 1.7
.5 –1.0 –.9 .6 –.2 –1.7 –1.3 –.3 .1 .1 1.1 .1 .2 .2 .6 .6 1.2 .6 .4 1.8 2.7 2.7 2.7 .9 1.7 3.1 1.1 .3 .4 .7
.2 –.2 .0 .6 .5 –.2 –.1 .5 .9 .5 .2 –.5 –.3 .0 .0 –.2 .0 –.3 .0 .1 .7 3.9 1.6 –.3 .1 .6 .9 .2 –.4 –.3 .8 .1 .7
.1 .9 .8 1.2 .7 .7 .9 .7 .4 1.5 .0 .0 –.1 –.3 –.3 .2 .3 –.2 .6 .1 .0 –.1 .2 .7 .1 –1.2

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

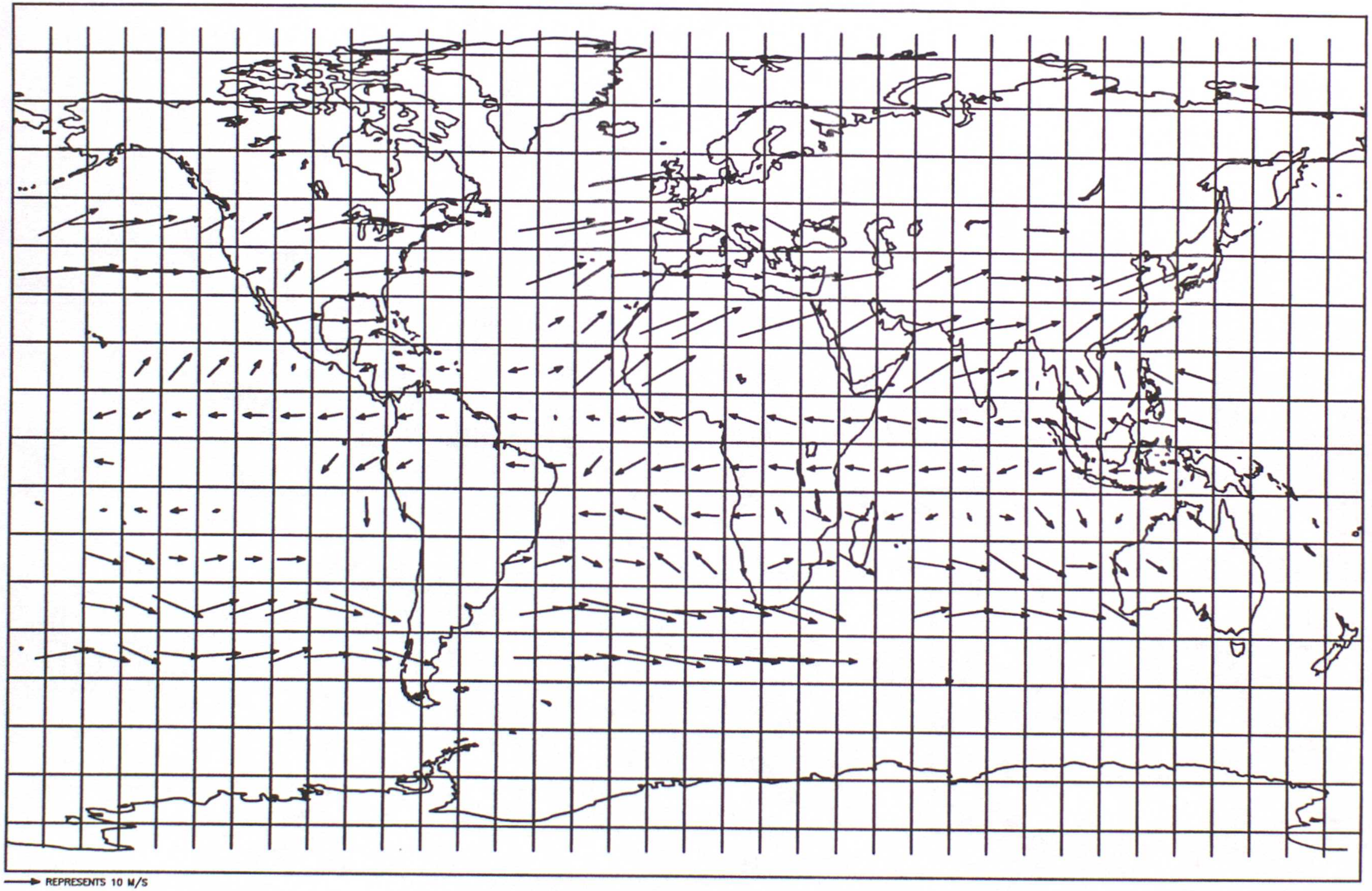

3
6 5 5 5 5 3 4 4 3 4 3 5 4 3 4 4
4 6 5 5 4 3 3 5 5 4 4 3 3 3 3 3 3 9 9 8 7 4 4 4 4 4
4 3 3 3 3 3 3 4 5 3 3 3 3 3 3 2 3 3 6 6 6 7 7 6 6 3 3 3 3 3
3 3 3 3 3 4 4 4 5 3 3 3 3 3 3 4 7 8 5 5 7 6 5 5 5 3 3 3 3
5 4 3 3 3 4 4 5 5 6 5 3 4 3 4 4 4 9 7 8 5 5 7 8 5 5 4 5 4 4
4 3 3 3 3 3 3 3 3 5 3 4 4 4 5 4 7 7 7 9 6 6 6 7 3 3 4 4
4 3 3 3 3 3 3 2 3 3 3 2 3 3 5 3 6 6 5 4 4 5 6 6 6 3 4 4
3 4 4 4 3 3 3 3 3 3 3 3 3 3 3 4 5 4 3 6 6 5 5 4 4 6 5 3 3 3
3 3 4 4 4 4 3 3 3 3 3 5 4 4 4 4 3 3 4 4 4 7 6 6 5 4 5 3 3 5 4 3 3
4 6 6 7 6 4 5 4 4 9 4 4 3 3 3 3 4 4 4 4 3 4 4 4 3 3

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
DECEMBER 1994


1 2 1 0
1 2 1 1 2 2 2 2 1 0 0 2 5 4 2 2 3 3 1
0 1 1 2 2 2 1 1 1 1 1 1 0 1 2 4 4 2 4 7 5 2 1 5 6 12 18 8 0
0 0 0 0 1 1 0 1 1 1 1 1 0 1 1 4 6 3 1 1 1 0 1 0 1 3 3 4 14 18 8
0 1 1 1 2 1 2 4 1 1 1 1 2 2 4 1 0 0 0 0 0 1 1 2 2 1 6 11 8 2
0 1 3 1 2 3 3 6 8 2 2 1 3 2 2 1 2 1 1 4 2 10 13 7 9 9 13 17 15 7
0 1 0 0 0 0 0 1 5 3 0 0 1 1 1 1 8 9 6 7 6 3 7 9 9 5 8 10 9 5
0 1 1 1 1 0 0 0 1 0 0 0 1 0 1 2 5 5 4 2 1 1 2 2 2 2 2 3 2 1
0 1 1 1 1 2 1 1 0 0 0 0 1 1 1 2 4 3 1 2 1 0 3 5 4 1 1 3 4
0 0 1 1 1 1 1 2 2 1 1 1 0 0 2 3 4 4 3 2 1 1 0 1 5 10 11 4 2
1 1 1 2 2 2 2 3 3 1 0 2 7 9 9 8 8 5 2
1 1

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
DECEMBER 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16


REPRESENTS 10 M/S

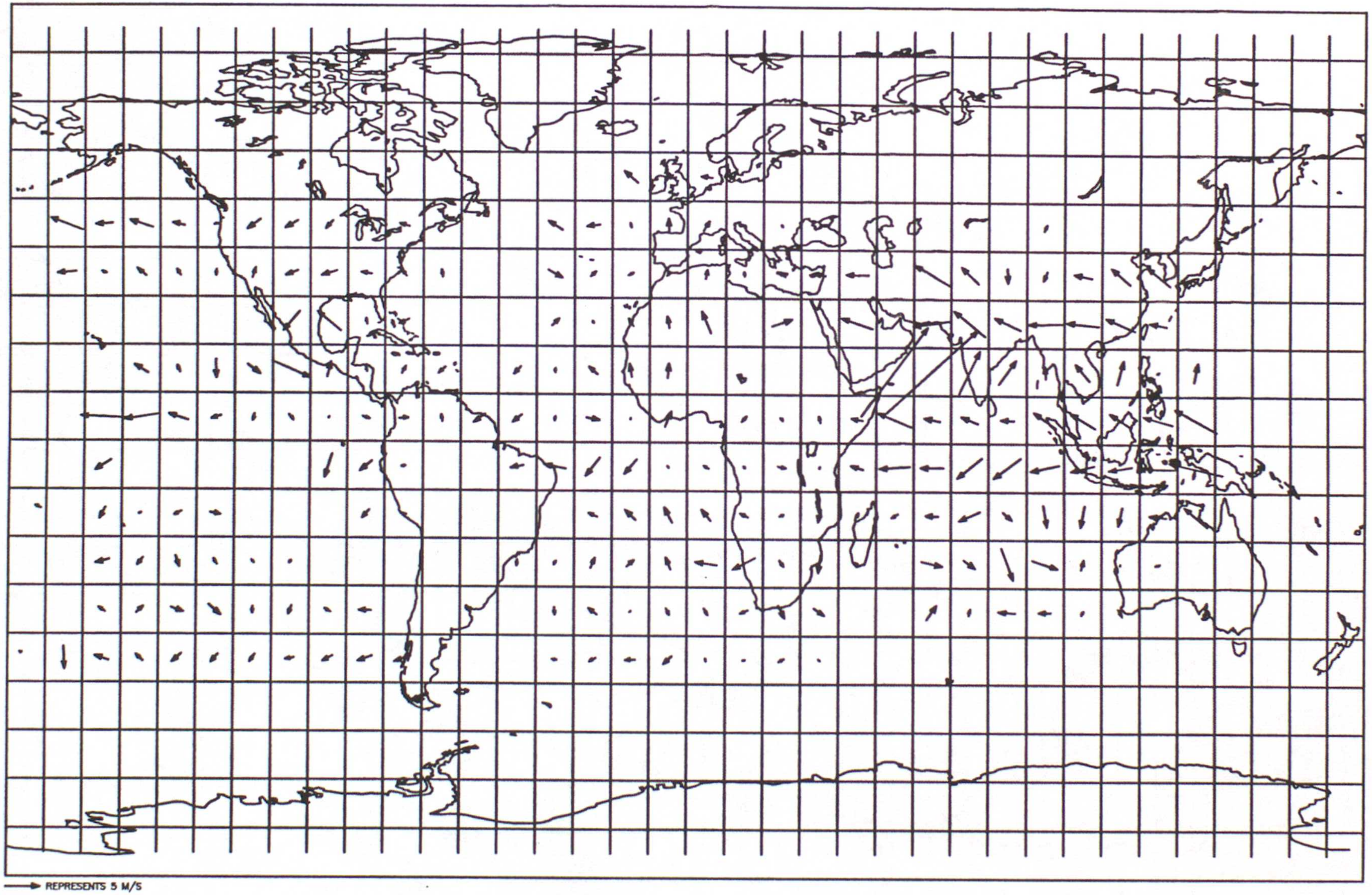
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

DECEMBER 1994

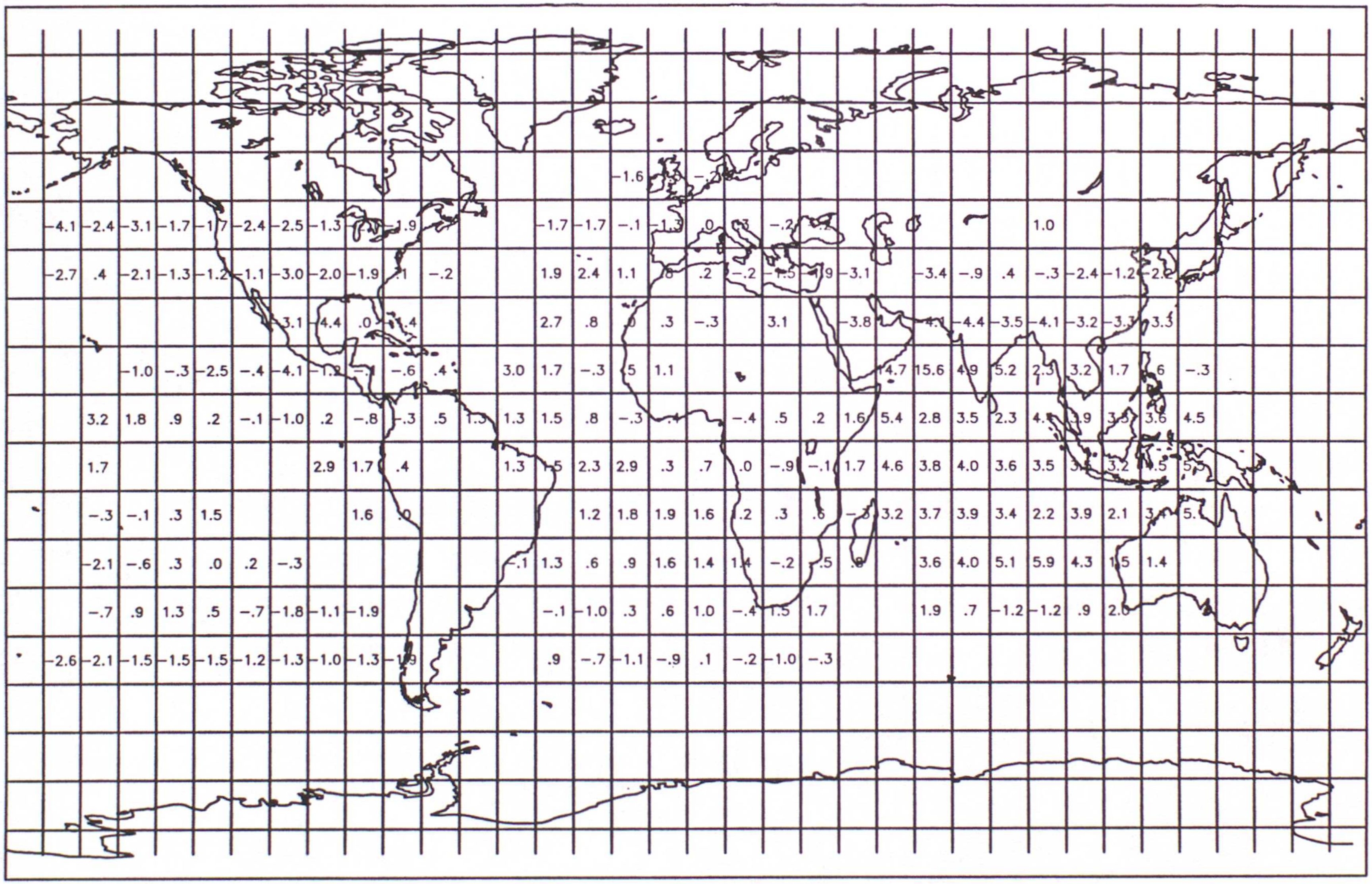
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

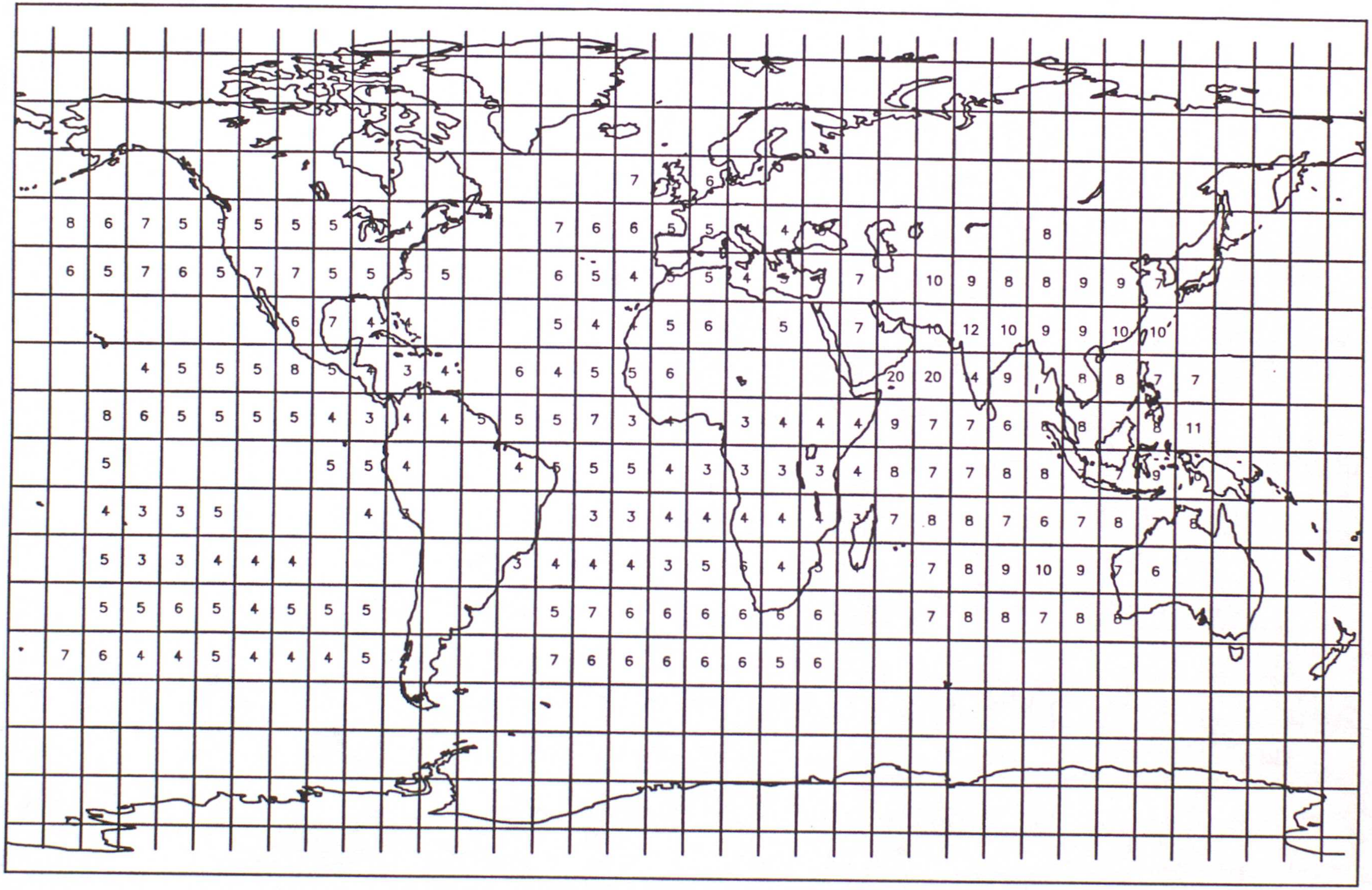
FIGURE 17



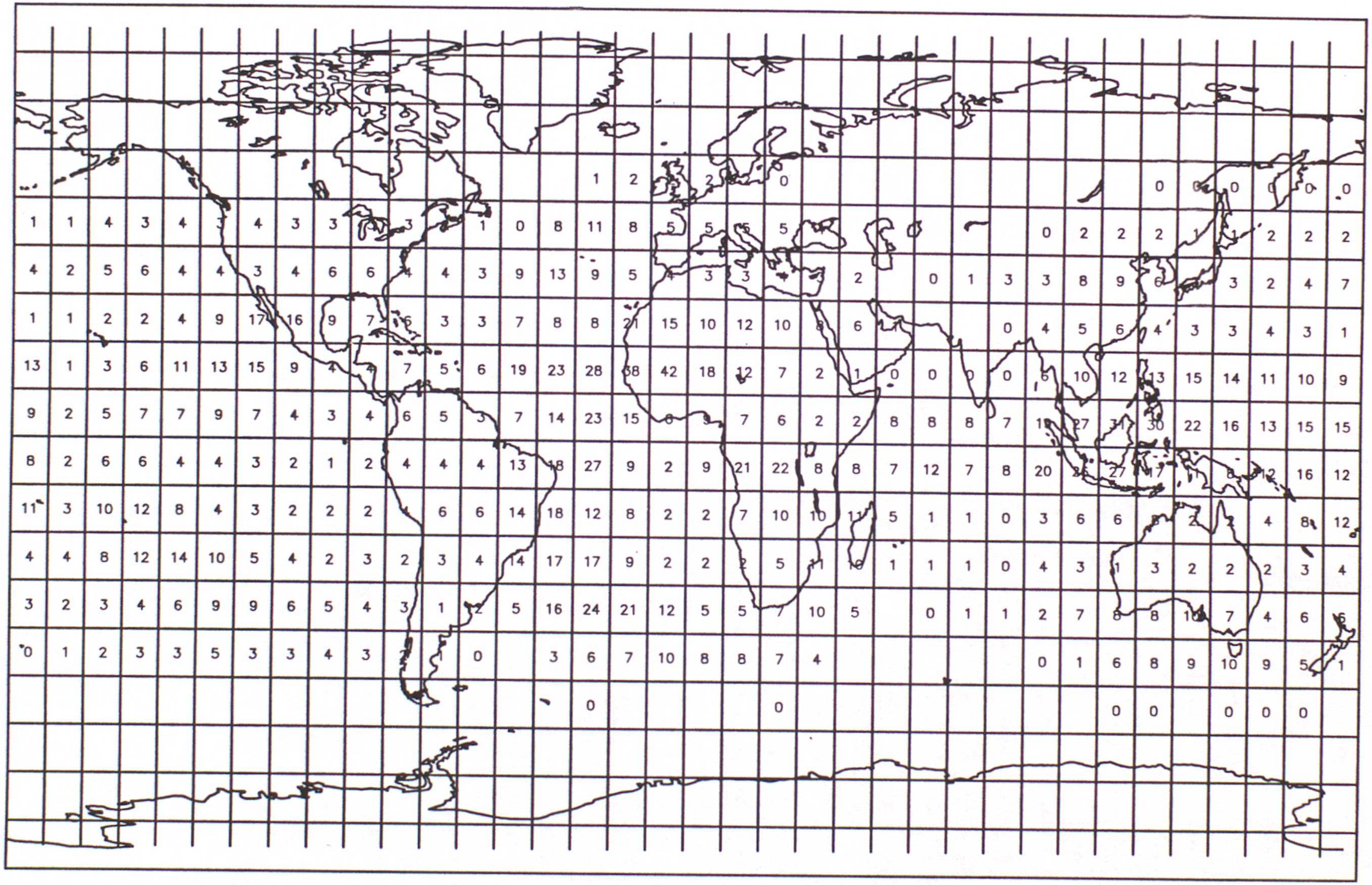
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.6
-4.1 -2.4 -3.1 -1.7 -1.7 -2.4 -2.5 -1.3 -1.9 -1.7 -1.7 -.1 -1.3 .0 .3 -.2 1.0
-2.7 .4 -2.1 -1.3 -1.2 -1.1 -3.0 -2.0 -1.9 .1 -.2 1.9 2.4 1.1 .8 .2 -.2 -1.5 -1.9 -3.1 -3.4 -.9 .4 -.3 -2.4 -1.2 -2.2
-3.1 -4.4 .0 -.4 2.7 .8 .0 .3 -.3 3.1 -3.8 -4.1 -4.4 -3.5 -4.1 -3.2 -3.3 3.3
-1.0 -.3 -2.5 -.4 -4.1 -1.2 -.1 -.6 .4 3.0 1.7 -.3 .5 1.1 4.7 15.6 4.9 5.2 2.3 3.2 1.7 .6 -.3
3.2 1.8 .9 .2 -.1 -1.0 .2 -.8 -.3 .5 1.3 1.3 1.5 .8 -.3 -.4 -.4 .5 .2 1.6 5.4 2.8 3.5 2.3 4.5 .9 3.3 3.6 4.5
1.7 2.9 1.7 .4 1.3 1.5 2.3 2.9 .3 .7 .0 -.9 -.1 1.7 4.6 3.8 4.0 3.6 3.5 3.5 3.2 4.5 5.3
-.3 -.1 .3 1.5 1.6 .0 1.2 1.8 1.9 1.6 .2 .3 .6 -.3 3.2 3.7 3.9 3.4 2.2 3.9 2.1 3.4 5.
-2.1 -.6 .3 .0 .2 -.3 .1 1.3 .6 .9 1.6 1.4 1.4 -.2 .5 .8 3.6 4.0 5.1 5.9 4.3 1.5 1.4
-.7 .9 1.3 .5 -.7 -1.8 -1.1 -1.9 -.1 -1.0 .3 .6 1.0 -.4 1.5 1.7 1.9 .7 -1.2 -1.2 .9 2.0
-2.6 -2.1 -1.5 -1.5 -1.5 -1.2 -1.3 -1.0 -1.3 -1.9 .9 -.7 -1.1 -.9 .1 -.2 -1.0 -.3

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

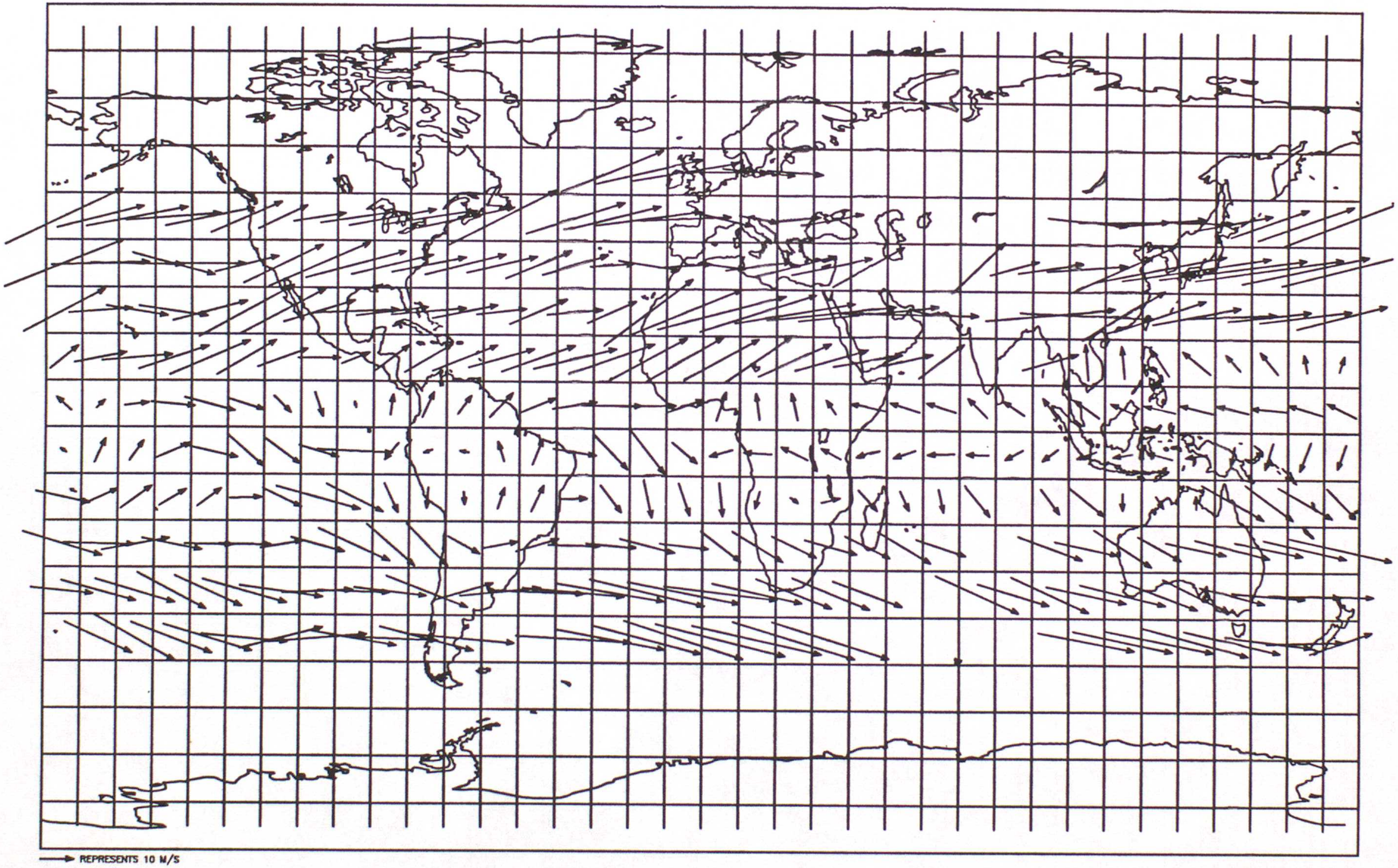

7 6
8 6 7 5 5 5 5 5 4 7 6 6 5 5 4 4 6 8
6 5 7 6 5 7 7 5 5 5 5 6 5 4 5 5 4 5 6 7 10 9 8 8 9 9 7
6 7 4 4 5 4 4 5 6 5 7 10 12 10 9 9 10 10
4 5 5 5 8 5 4 3 4 6 4 5 5 6 20 20 14 9 7 8 8 7 7
8 6 5 5 5 5 4 3 4 4 5 5 5 7 3 4 3 4 4 4 9 7 7 6 8 8 7 8 11
5 5 5 4 4 5 5 5 4 3 3 3 3 4 8 7 7 8 8 7 7 9 6
4 3 3 5 4 3 3 3 4 4 4 4 4 3 7 8 8 7 6 7 8 7 8
5 3 3 4 4 4 3 4 4 4 3 5 6 4 5 4 7 8 9 10 9 7 6
5 5 6 5 4 5 5 5 5 7 6 6 6 6 6 6 7 8 8 7 8 8
7 6 4 4 5 4 4 4 5 7 6 6 6 6 6 5 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
DECEMBER 1994


1 2 2 2 0 0 0 0 0 0 0
1 1 4 3 4 3 4 3 3 3 3 1 0 8 11 8 5 5 5 5 0 2 2 2 1 1 2 2 2
4 2 5 6 4 4 3 4 6 6 4 4 3 9 13 9 5 4 3 3 3 2 0 1 3 3 8 9 6 3 2 4 7
1 1 2 2 4 9 17 16 9 7 6 3 3 7 8 8 21 15 10 12 10 8 6 1 0 4 5 6 4 3 3 4 3 1
13 1 3 6 11 13 15 9 4 4 7 5 6 19 23 28 38 42 18 12 7 2 1 0 0 0 0 6 10 12 13 15 14 11 10 9
9 2 5 7 7 9 7 4 3 4 6 5 3 7 14 23 15 6 3 7 6 2 2 8 8 8 7 18 27 31 30 22 16 13 15 15
8 2 6 6 4 4 3 2 1 2 4 4 4 13 18 27 9 2 9 21 22 8 8 7 12 7 8 20 25 27 17 11 8 12 16 12
11 3 10 12 8 4 3 2 2 2 6 6 14 18 12 8 2 2 7 10 10 11 5 1 1 0 3 6 6 8 2 2 4 8 12
4 4 8 12 14 10 5 4 2 3 2 3 4 14 17 17 9 2 2 2 5 11 10 1 1 1 0 4 3 1 3 2 2 2 3 4
3 2 3 4 6 9 9 6 5 4 3 1 2 5 16 24 21 12 5 5 7 10 5 0 1 1 2 7 8 8 10 7 4 6 6
0 1 2 3 3 5 3 3 4 3 2 1 0 3 6 7 10 8 8 7 4 0 1 6 8 9 10 9 5 1
0 0 0 0 0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
DECEMBER 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

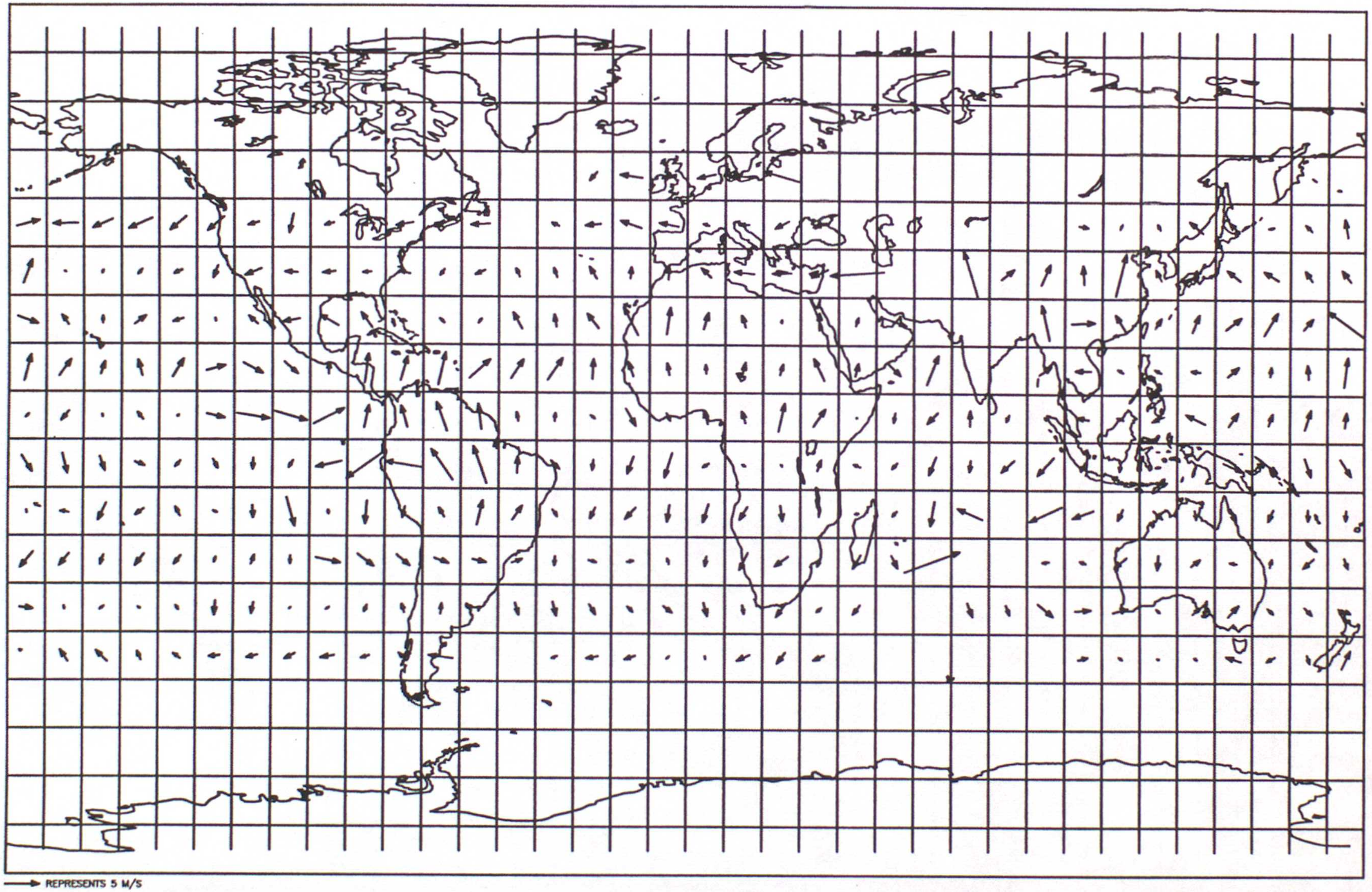
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA

FIGURE 22

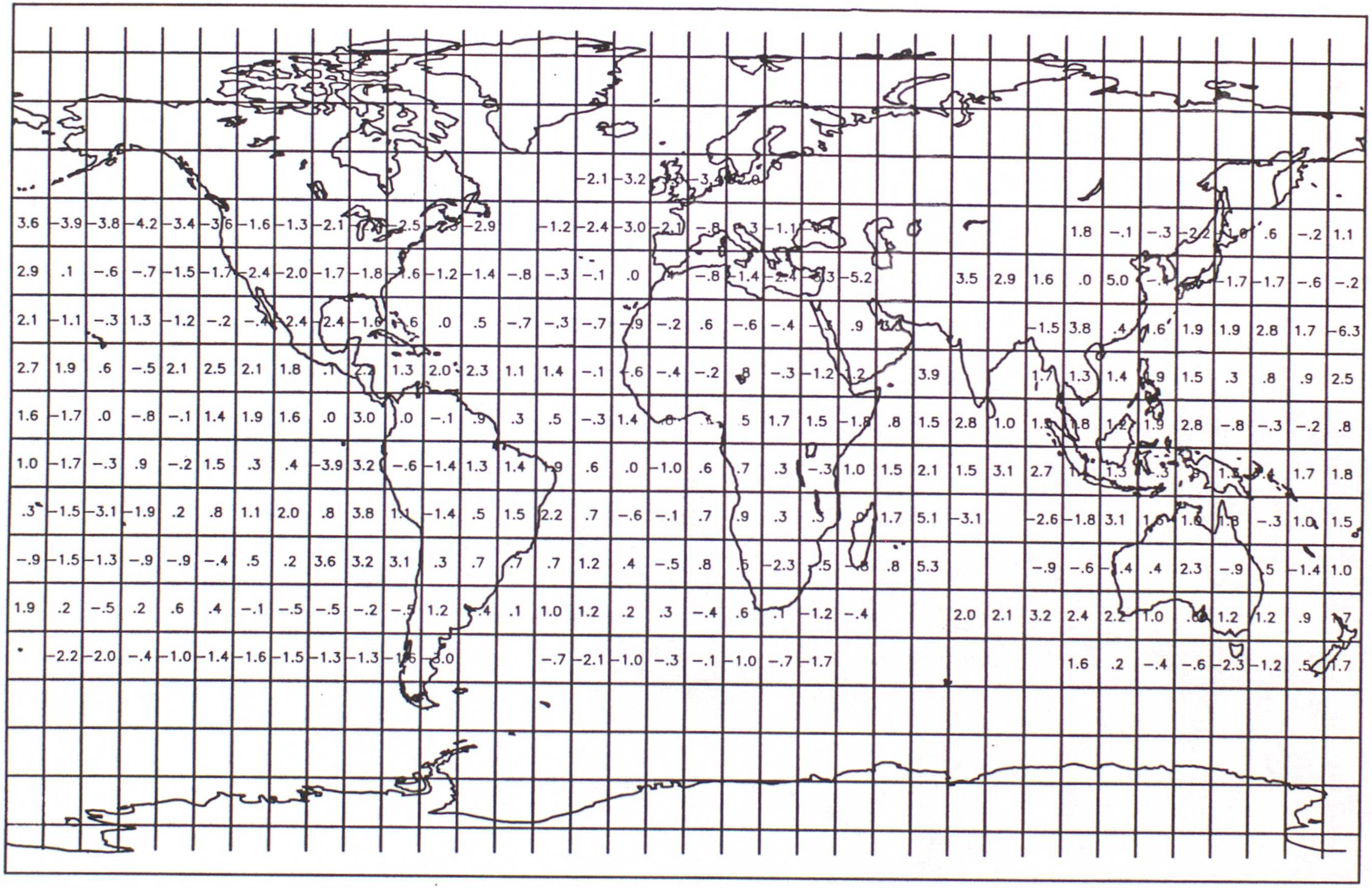
DECEMBER 1994

ALL OBSERVATIONS

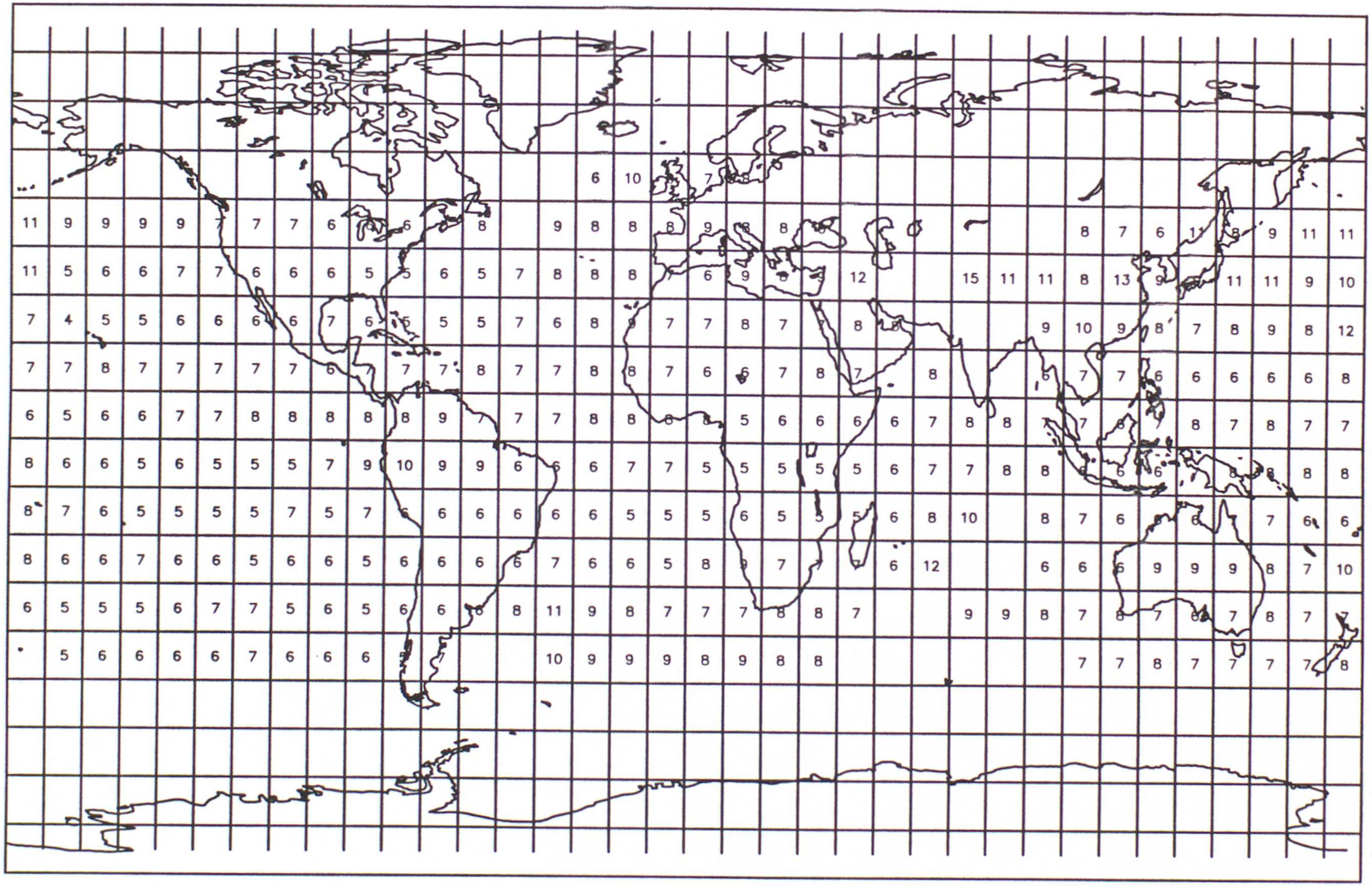
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-2.1 -3.2 -3.4
3.6 -3.9 -3.8 -4.2 -3.4 -3.6 -1.6 -1.3 -2.1 -2.5 -2.9 -1.2 -2.4 -3.0 -2.1 -.8 -.3 -1.1 1.8 -.1 -.3 -2.2 .6 -.2 1.1
2.9 .1 -.6 -.7 -1.5 -1.7 -2.4 -2.0 -1.7 -1.8 -1.6 -1.2 -1.4 -.8 -.3 -.1 .0 -.8 -1.4 -2.4 -3.3 -5.2 3.5 2.9 1.6 .0 5.0 -1.7 -1.7 -.6 -.2
2.1 -1.1 -.3 1.3 -1.2 -.2 -.4 -2.4 -2.4 -1.6 .6 .0 .5 -.7 -.3 -.7 -.9 -.2 .6 -.6 -.4 .9 -1.5 3.8 .4 1.6 1.9 1.9 2.8 1.7 -6.3
2.7 1.9 .6 -.5 2.1 2.5 2.1 1.8 .1 2.2 1.3 2.0 2.3 1.1 1.4 -.1 -.6 -.4 -.2 .8 -.3 -1.2 1.2 3.9 1.7 1.3 1.4 .9 1.5 .3 .8 .9 2.5
1.6 -1.7 .0 -.8 -.1 1.4 1.9 1.6 .0 3.0 .0 -.1 .9 .3 .5 -.3 1.4 .6 .5 1.7 1.5 -1.8 .8 1.5 2.8 1.0 1.5 1.8 1.2 1.9 2.8 -.8 -.3 -.2 .8
1.0 -1.7 -.3 .9 -.2 1.5 .3 .4 -3.9 3.2 -.6 -1.4 1.3 1.4 1.9 .6 .0 -1.0 .6 .7 .3 -.3 1.0 1.5 2.1 1.5 3.1 2.7 1.3 .3 1.3 1.7 1.8
.3 -1.5 -3.1 -1.9 .2 .8 1.1 2.0 .8 3.8 1.1 -1.4 .5 1.5 2.2 .7 -.6 -.1 .7 .9 .3 .3 1.7 5.1 -3.1 -2.6 -1.8 3.1 1.6 1.6 1.8 -.3 1.0 1.5
-.9 -1.5 -1.3 -.9 -.9 -.4 .5 .2 3.6 3.2 3.1 .3 .7 .7 .7 1.2 .4 -.5 .8 .5 -2.3 .5 -.8 .8 5.3 -.9 -.6 -.4 .4 2.3 -.9 .5 -1.4 1.0
1.9 .2 -.5 .2 .6 .4 -.1 -.5 -.5 -.2 -.5 1.2 .4 .1 1.0 1.2 .2 .3 -.4 .6 .1 -1.2 -.4 2.0 2.1 3.2 2.4 2.2 1.0 .6 1.2 1.2 .9 .7
-2.2 -2.0 -.4 -1.0 -1.4 -1.6 -1.5 -1.3 -1.3 -1.6 -3.0 -.7 -2.1 -1.0 -.3 -.1 -1.0 -.7 -1.7 1.6 .2 -.4 -.6 -2.3 -1.2 .5 1.7

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
DECEMBER 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 10 7 8
11 9 9 9 9 7 7 7 6 6 6 8 9 8 8 8 9 8 8 6 8 7 6 11 8 9 11 11
11 5 6 6 7 7 6 6 6 5 5 6 5 7 8 8 8 7 6 9 8 9 12 15 11 11 8 13 9 8 11 11 9 10
7 4 5 5 6 6 6 6 7 6 5 5 5 7 6 8 9 7 7 8 7 7 8 8 9 10 9 8 7 8 9 8 12
7 7 8 7 7 7 7 7 6 7 7 7 8 7 7 8 8 7 6 6 7 8 7 8 6 7 7 6 6 6 6 6 8
6 5 6 6 7 7 8 8 8 8 8 9 7 7 7 8 8 8 8 5 6 6 6 6 7 8 8 7 7 8 7 8 7 8 7 7
8 6 6 5 6 5 5 5 7 9 10 9 9 6 6 6 7 7 5 5 5 5 5 6 7 7 8 8 6 6 6 7 8 8 8 8
8 7 6 5 5 5 5 7 5 7 6 6 6 6 6 6 5 5 5 6 5 5 5 6 8 10 8 7 6 6 6 7 7 6 6
8 6 6 7 6 6 5 6 6 5 6 6 6 6 7 6 6 5 8 9 7 7 7 6 12 6 6 6 9 9 9 8 7 10
6 5 5 5 6 7 7 5 6 5 6 6 6 8 11 9 8 7 7 7 8 8 7 9 9 8 7 8 7 6 7 8 7 7
5 6 6 6 6 7 6 6 6 5 7 10 9 9 9 8 9 8 8 7 7 8 7 7 7 7 8

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

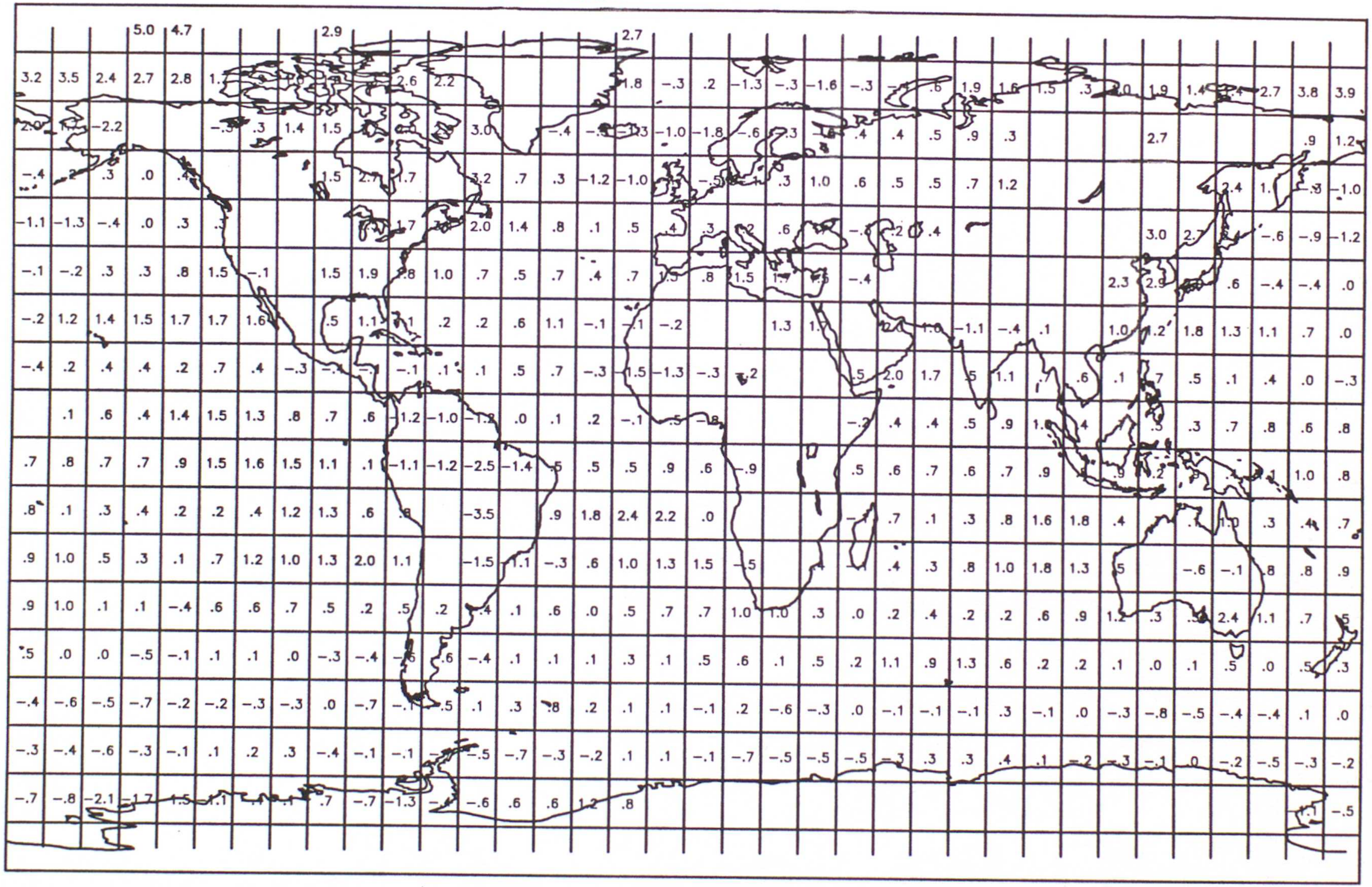
MONTH:December, 94

Monitoring procedures

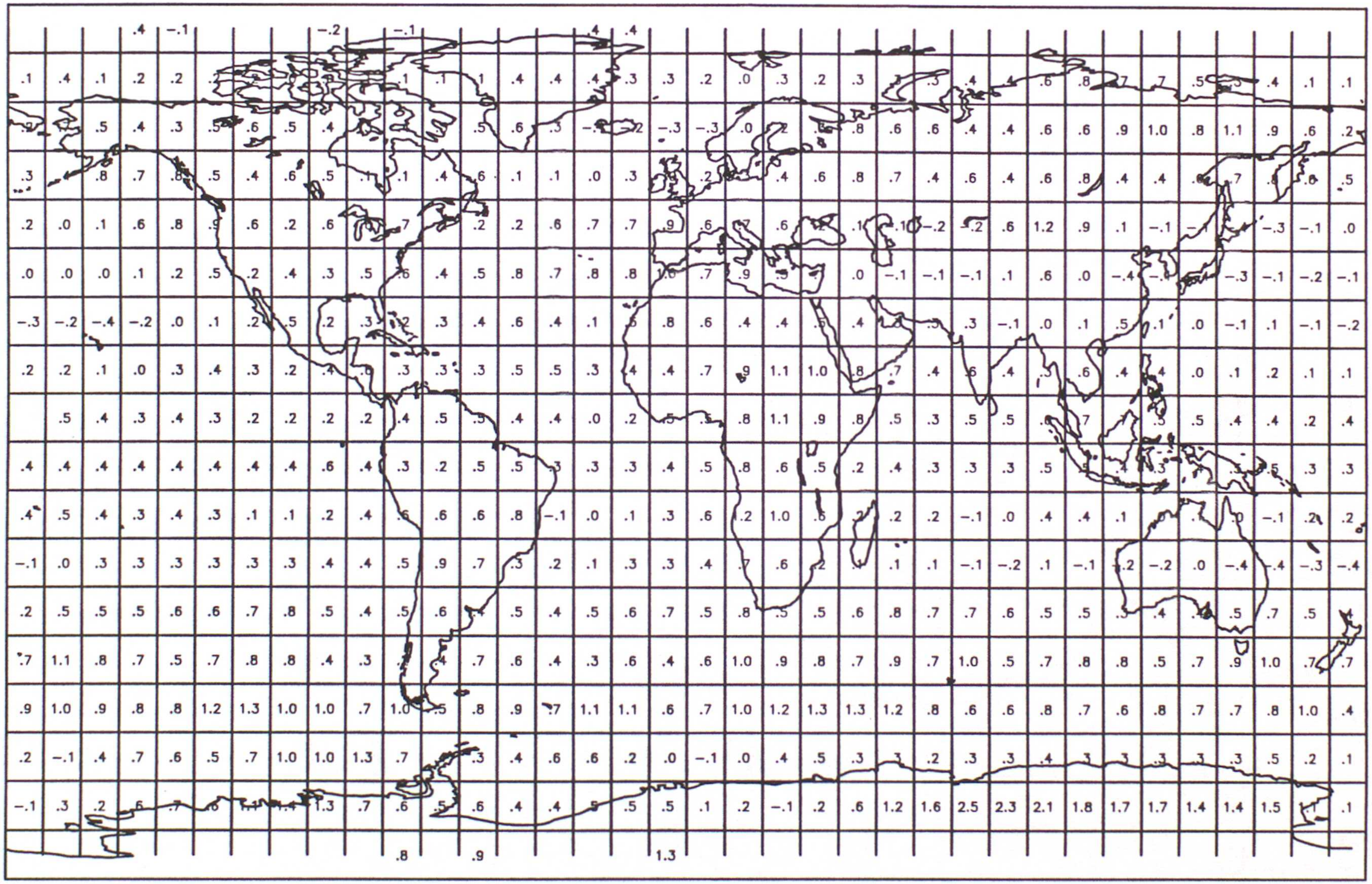
Period	:One calendar month.
Data monitored	:Reports from NOAA-11, NOAA-12 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer:850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
DECEMBER 1994
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25

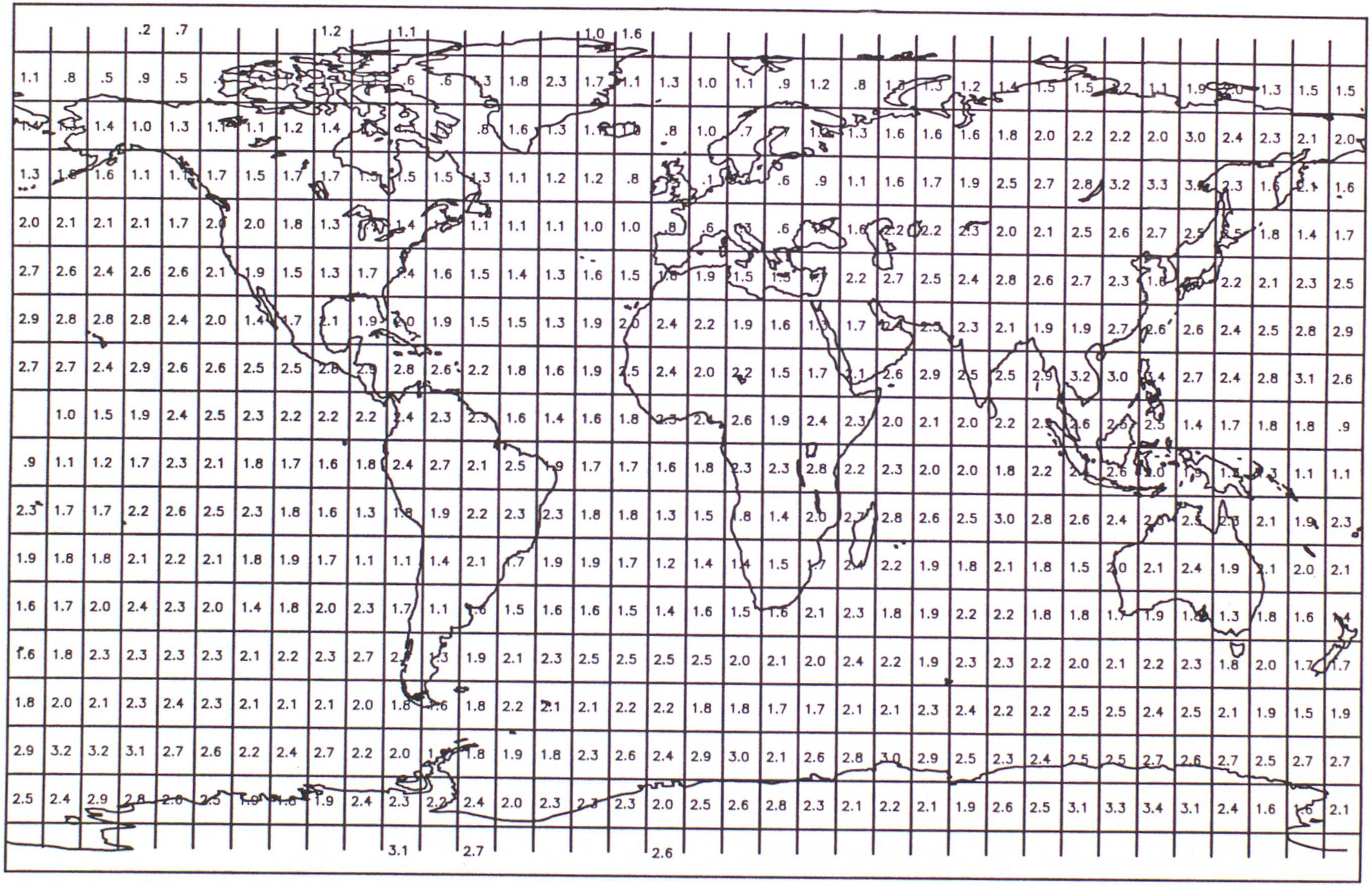


500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
DECEMBER 1994
FIGURE 26
NOAA–11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.4 −.1 −.2 −.1 .4 .4
.1 .4 .1 .2 .2 .2 .2 .1 .1 .1 .4 .4 .4 .3 .3 .2 .0 .3 .2 .3 .3 .3 .4 .4 .6 .8 .7 .7 .5 .5 .4 .1 .1
.2 .1 .5 .4 .3 .5 .6 .5 .4 .5 .6 .3 −.2 −.2 −.3 −.3 .0 .2 .8 .8 .6 .6 .4 .4 .6 .6 .9 1.0 .8 1.1 .9 .6 .2
.3 .8 .7 .8 .5 .4 .6 .5 .1 .1 .4 .6 .1 .1 .0 .3 .3 .2 .2 .4 .6 .8 .7 .4 .6 .4 .6 .8 .4 .4 .6 .7 .8 .6 .5
.2 .0 .1 .6 .8 .9 .6 .2 .6 .6 .7 .2 .2 .6 .7 .7 .9 .6 .7 .6 .2 .1 .1 −.2 .2 .6 1.2 .9 .1 −.1 −.1 −.1 −.3 −.1 .0
.0 .0 .0 .1 .2 .5 .2 .4 .3 .5 .6 .4 .5 .8 .7 .8 .8 1.0 .7 .9 .5 .7 .0 −.1 −.1 −.1 .1 .6 .0 −.4 −.4 −.1 −.3 −.1 −.2 −.1
−.3 −.2 −.4 −.2 .0 .1 .2 .5 .2 .3 .2 .3 .4 .6 .4 .1 .5 .8 .6 .4 .4 .5 .4 .3 .3 −.1 .0 .1 .5 .1 .0 −.1 .1 −.1 −.2
.2 .2 .1 .0 .3 .4 .3 .2 .4 .6 .3 .3 .3 .5 .5 .3 .4 .4 .7 .9 1.1 1.0 .8 .7 .4 .6 .4 .3 .6 .4 .4 .0 .1 .2 .1 .1
.5 .4 .3 .4 .3 .2 .2 .2 .2 .4 .5 .5 .4 .4 .0 .2 .5 .5 .8 1.1 .9 .8 .5 .3 .5 .5 .6 .7 .7 .5 .5 .4 .4 .2 .4
.4 .4 .4 .4 .4 .4 .4 .4 .6 .4 .3 .2 .5 .5 .3 .3 .3 .4 .5 .8 .6 .5 .2 .4 .3 .3 .5 .5 .4 .3 .4 .3 .5 .3 .3
.4 .5 .4 .3 .4 .3 .1 .1 .2 .4 .6 .6 .6 .8 −.1 .0 .1 .3 .6 .2 1.0 .6 .2 .2 .2 −.1 .0 .4 .4 .1 .0 .1 .0 −.1 .2 .2
−.1 .0 .3 .3 .3 .3 .3 .3 .4 .4 .5 .9 .7 .3 .2 .1 .3 .3 .4 .7 .6 .2 .1 .1 .1 −.1 −.2 .1 −.1 .2 −.2 .0 −.4 .4 −.3 −.4
.2 .5 .5 .5 .6 .6 .7 .8 .5 .4 .5 .6 .4 .5 .4 .5 .6 .7 .5 .8 .5 .5 .6 .8 .7 .7 .6 .5 .5 .3 .4 .4 .5 .7 .5 .4
.7 1.1 .8 .7 .5 .7 .8 .8 .4 .3 .4 .4 .7 .6 .4 .3 .6 .4 .6 1.0 .9 .8 .7 .9 .7 1.0 .5 .7 .8 .8 .5 .7 .9 1.0 .7 .7
.9 1.0 .9 .8 .8 1.2 1.3 1.0 1.0 .7 1.0 .5 .8 .9 .7 1.1 1.1 .6 .7 1.0 1.2 1.3 1.3 1.2 .8 .6 .6 .8 .7 .6 .8 .7 .7 .8 1.0 .4
.2 −.1 .4 .7 .6 .5 .7 1.0 1.0 1.3 .7 .3 .4 .6 .6 .2 .0 −.1 .0 .4 .5 .3 .3 .2 .3 .3 .4 .3 .3 .3 .3 .3 .5 .2 .1
−.1 .3 .2 .6 .7 .6 1.1 1.4 1.3 .7 .6 .5 .6 .4 .4 .5 .5 .5 .1 .2 −.1 .2 .6 1.2 1.6 2.5 2.3 2.1 1.8 1.7 1.7 1.4 1.4 1.5 1.1 .1
.8 .9 1.3

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
DECEMBER 1994
NOAA–11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

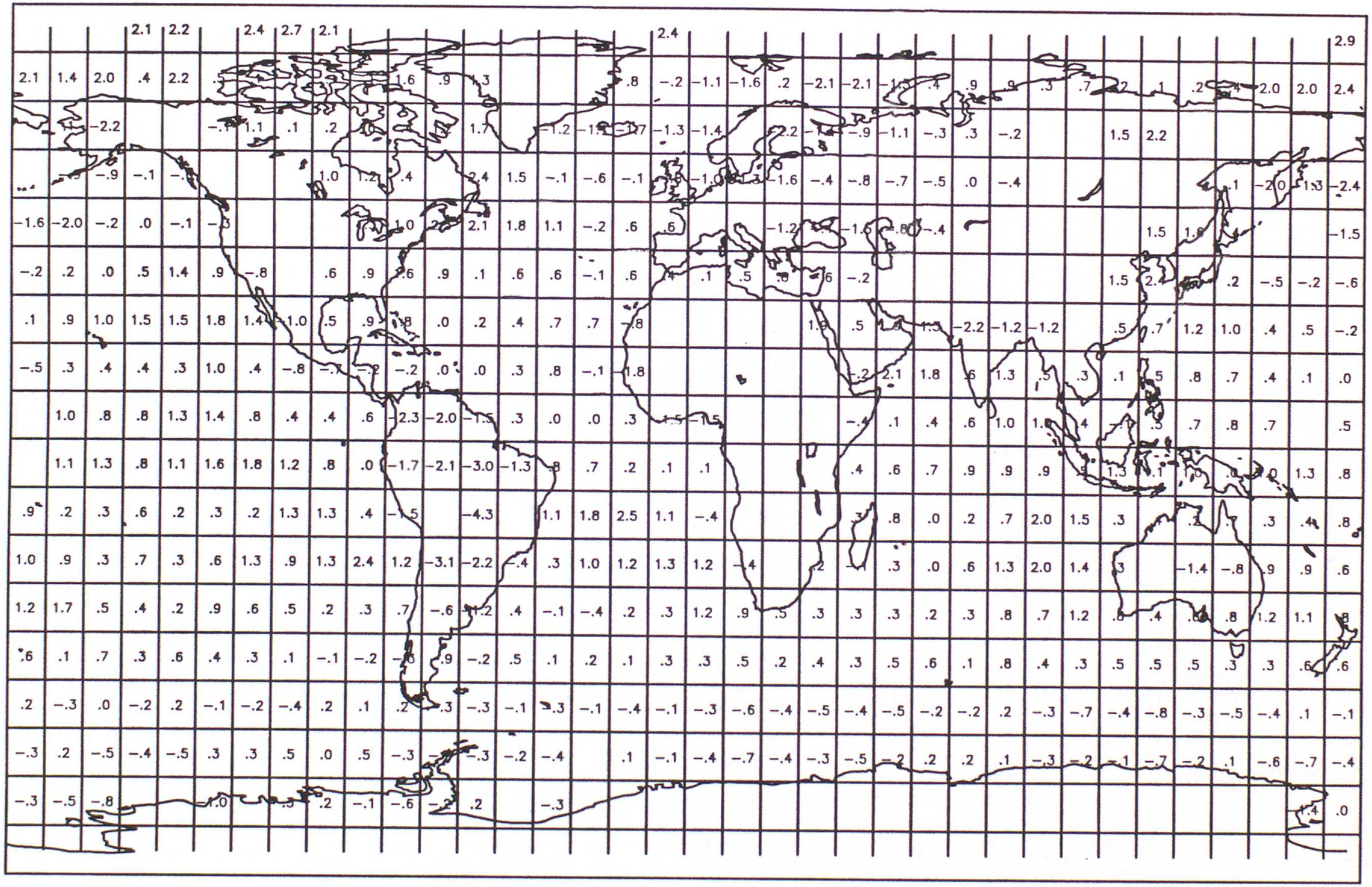
FIGURE 27



			.2	.7				1.2		1.1					1.0	1.6																			
1.1	.8	.5	.9	.5	[illegible]					.6	.6	1.3	1.8	2.3	1.7	1.1	1.3	1.0	1.1	.9	1.2	.8	1.3	1.3	1.2	1.4	1.5	1.5	2.2	1.1	1.9	2.0	1.3	1.5	1.5
1.4	1.3	1.4	1.0	1.3	1.1	1.1	1.2	1.4	[illegible]		[illegible]	.8	1.6	1.3	1.1	[illegible]	.8	1.0	.7	.7	[illegible]	1.3	1.6	1.6	1.6	1.8	2.0	2.2	2.2	2.0	3.0	2.4	2.3	2.1	2.0
1.3	1.8	1.6	1.1	1.1	1.7	1.5	1.7	1.7	1.5	1.5	1.5	1.3	1.1	1.2	1.2	.8	[illegible]	.1	[illegible]	.6	.9	1.1	1.6	1.7	1.9	2.5	2.7	2.8	3.2	3.3	[illegible]	2.3	1.6	2.1	1.6
2.0	2.1	2.1	2.1	1.7	[illegible]	2.0	1.8	1.3	[illegible]	1.4	[illegible]	1.1	1.1	1.1	1.0	1.0	.8	.6	[illegible]	.6	[illegible]	1.6	2.2	2.2	2.3	2.0	2.1	2.5	2.6	2.7	2.5	2.5	1.8	1.4	1.7
2.7	2.6	2.4	2.6	2.6	2.1	1.9	1.5	1.3	1.7	[illegible]	1.6	1.5	1.4	1.3	1.6	1.5	[illegible]	1.9	1.5	1.5	[illegible]	2.2	2.7	2.5	2.4	2.8	2.6	2.7	2.3	1.6		2.2	2.1	2.3	2.5
2.9	2.8	2.8	2.8	2.4	2.0	1.4	1.7	2.1	1.9	2.0	1.9	1.5	1.5	1.3	1.9	2.0	2.4	2.2	1.9	1.6	1.3	1.7	2.4	[illegible]	2.3	2.1	1.9	1.9	2.7	2.6	2.6	2.4	2.5	2.8	2.9
2.7	2.7	2.4	2.9	2.6	2.6	2.5	2.5	2.8	2.9	2.8	2.6	2.2	1.8	1.6	1.9	2.5	2.4	2.0	2.2	1.5	1.7	2.1	2.6	2.9	2.5	2.5	2.9	3.2	3.0	3.4	2.7	2.4	2.8	3.1	2.6
	1.0	1.5	1.9	2.4	2.5	2.3	2.2	2.2	2.2	2.4	2.3	2.3	1.6	1.4	1.6	1.8	2.3	[illegible]	2.6	1.9	2.4	2.3	2.0	2.1	2.0	2.2	[illegible]	2.6	2.5	2.5	1.4	1.7	1.8	1.8	.9
.9	1.1	1.2	1.7	2.3	2.1	1.8	1.7	1.6	1.8	2.4	2.7	2.1	2.5	1.9	1.7	1.7	1.6	1.8	2.3	2.3	2.8	2.2	2.3	2.0	2.0	1.8	2.2	[illegible]	2.6	[illegible]	1.9	[illegible]	[illegible]	1.1	1.1
2.3	1.7	1.7	2.2	2.6	2.5	2.3	1.8	1.6	1.3	1.8	1.9	2.2	2.3	2.3	1.8	1.8	1.3	1.5	1.8	1.4	2.0	2.7	2.8	2.6	2.5	3.0	2.8	2.6	2.4	[illegible]	2.5	2.3	2.1	1.9	2.3
1.9	1.8	1.8	2.1	2.2	2.1	1.8	1.9	1.7	1.1	1.1	1.4	2.1	1.7	1.9	1.9	1.7	1.2	1.4	1.4	1.5	1.7	[illegible]	2.2	1.9	1.8	2.1	1.8	1.5	2.0	2.1	2.4	1.9	2.1	2.0	2.1
1.6	1.7	2.0	2.4	2.3	2.0	1.4	1.8	2.0	2.3	1.7	1.1	1.6	1.5	1.6	1.6	1.5	1.4	1.6	1.5	1.6	2.1	2.3	1.8	1.9	2.2	2.2	1.8	1.8	1.7	1.9	1.8	1.3	1.8	1.6	1.4
1.6	1.8	2.3	2.3	2.3	2.3	2.1	2.2	2.3	2.7	[illegible]	1.3	1.9	2.1	2.3	2.5	2.5	2.5	2.5	2.0	2.1	2.0	2.4	2.2	1.9	2.3	2.3	2.2	2.0	2.1	2.2	2.3	1.8	2.0	1.7	1.7
1.8	2.0	2.1	2.3	2.4	2.3	2.1	2.1	2.1	2.0	1.8	1.6	1.8	2.2	2.1	2.1	2.2	2.2	1.8	1.8	1.7	1.7	2.1	2.1	2.3	2.4	2.2	2.2	2.5	2.5	2.4	2.5	2.1	1.9	1.5	1.9
2.9	3.2	3.2	3.1	2.7	2.6	2.2	2.4	2.7	2.2	2.0	[illegible]	1.8	1.9	1.8	2.3	2.6	2.4	2.9	3.0	2.1	2.6	2.8	3.0	2.9	2.5	2.3	2.4	2.5	2.5	2.7	2.6	2.7	2.5	2.7	2.7
2.5	2.4	2.9	2.8	2.6	2.5	1.9	1.8	1.9	2.4	2.3	2.2	2.4	2.0	2.3	2.3	2.3	2.0	2.5	2.6	2.8	2.3	2.1	2.2	2.1	1.9	2.6	2.5	3.1	3.3	3.4	3.1	2.4	1.6	1.6	2.1
										3.1		2.7					2.6																		

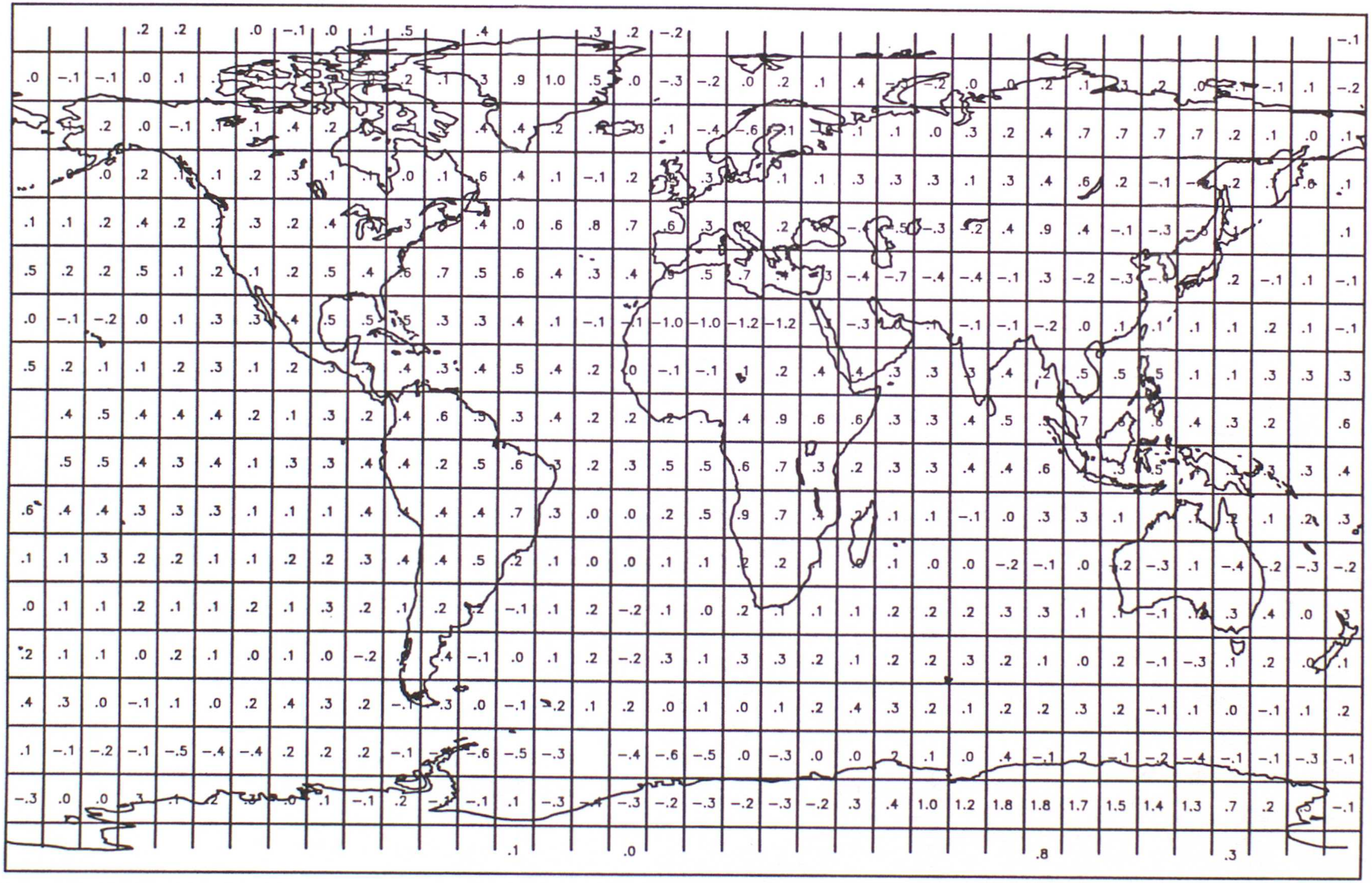
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
DECEMBER 1994
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


2.1 2.2 2.4 2.7 2.1 2.4 2.9
2.1 1.4 2.0 .4 2.2 .5 1.6 .9 1.3 .8 –.2 –1.1 –1.6 .2 –2.1 –2.1 –1.5 .4 .9 .9 .3 .7 .2 .1 .2 .4 2.0 2.0 2.4
–2.2 –.1 1.1 .1 .2 1.7 –1.2 –1.5 –1.7 –1.3 –1.4 –2.2 –1.4 –.9 –1.1 –.3 .3 –.2 1.5 2.2
–1.5 –.9 –.1 –.1 1.0 1.2 .4 2.4 1.5 –.1 –.6 –.1 –1.6 –1.0 –1.3 –1.6 –.4 –.8 –.7 –.5 .0 –.4 .1 –2.0 1.3 –2.4
–1.6 –2.0 –.2 .0 –.1 –.3 1.0 2.2 2.1 1.8 1.1 –.2 .6 .6 –1.2 –1.7 –1.6 –.8 –.4 1.5 1.6 –1.5
–.2 .2 .0 .5 1.4 .9 –.8 .6 .9 .6 .9 .1 .6 .6 –.1 .6 .4 .1 .5 .6 .6 –.2 1.5 2.4 .2 –.5 –.2 –.6
.1 .9 1.0 1.5 1.5 1.8 1.4 –1.0 .5 .9 .8 .0 .2 .4 .7 .7 –.8 1.9 .5 .6 1.5 –2.2 –1.2 –1.2 .5 .7 1.2 1.0 .4 .5 –.2
–.5 .3 .4 .4 .3 1.0 .4 –.8 –.7 –.2 –.2 .0 .0 .3 .8 –.1 –1.8 –.2 2.1 1.8 .6 1.3 .5 .3 .1 .5 .8 .7 .4 .1 .0
1.0 .8 .8 1.3 1.4 .8 .4 .4 .6 –2.3 –2.0 –1.5 .3 .0 .0 .3 –1.5 –1.5 –.4 .1 .4 .6 1.0 1.0 .4 –.1 .3 .7 .8 .7 .5
1.1 1.3 .8 1.1 1.6 1.8 1.2 .8 .0 –1.7 –2.1 –3.0 –1.3 .8 .7 .2 .1 .1 .4 .6 .7 .9 .9 .9 .5 1.3 .1 .0 1.0 1.3 .8
.9 .2 .3 .6 .2 .3 .2 1.3 1.3 .4 –.5 –4.3 1.1 1.8 2.5 1.1 –.4 .3 .8 .0 .2 .7 2.0 1.5 .3 .2 .1 .3 .4 .8
1.0 .9 .3 .7 .3 .6 1.3 .9 1.3 2.4 1.2 –3.1 –2.2 –.4 .3 1.0 1.2 1.3 1.2 –.4 .2 –.1 .3 .0 .6 1.3 2.0 1.4 .3 –1.4 –.8 .9 .9 .6
1.2 1.7 .5 .4 .2 .9 .6 .5 .2 .3 .7 –.6 –1.2 .4 –.1 –.4 .2 .3 1.2 .9 .5 .3 .3 .3 .2 .3 .8 .7 1.2 .6 .4 .6 .8 1.2 1.1 .8
.6 .1 .7 .3 .6 .4 .3 .1 –.1 –.2 –.6 .9 –.2 .5 .1 .2 .1 .3 .3 .5 .2 .4 .3 .5 .6 .1 .8 .4 .3 .5 .5 .5 .3 .3 .6 .6
.2 –.3 .0 –.2 .2 –.1 –.2 –.4 .2 .1 .2 .3 –.3 –.1 –.3 –.1 –.4 –.1 –.3 –.6 –.4 –.5 –.4 –.5 –.2 –.2 .2 –.3 –.7 –.4 –.8 –.3 –.5 –.4 .1 –.1
–.3 .2 –.5 –.4 –.5 .3 .3 .5 .0 .5 –.3 –.3 –.2 –.4 .1 –.1 –.4 –.7 –.4 –.3 –.5 –.2 .2 .2 .1 –.3 –.2 –.1 –.7 –.2 .1 –.6 –.7 –.4
–.3 –.5 –.8 –1.0 –.3 .2 –.1 –.6 –.2 .2 –.3 –1.4 .0

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
DECEMBER 1994
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
DECEMBER 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

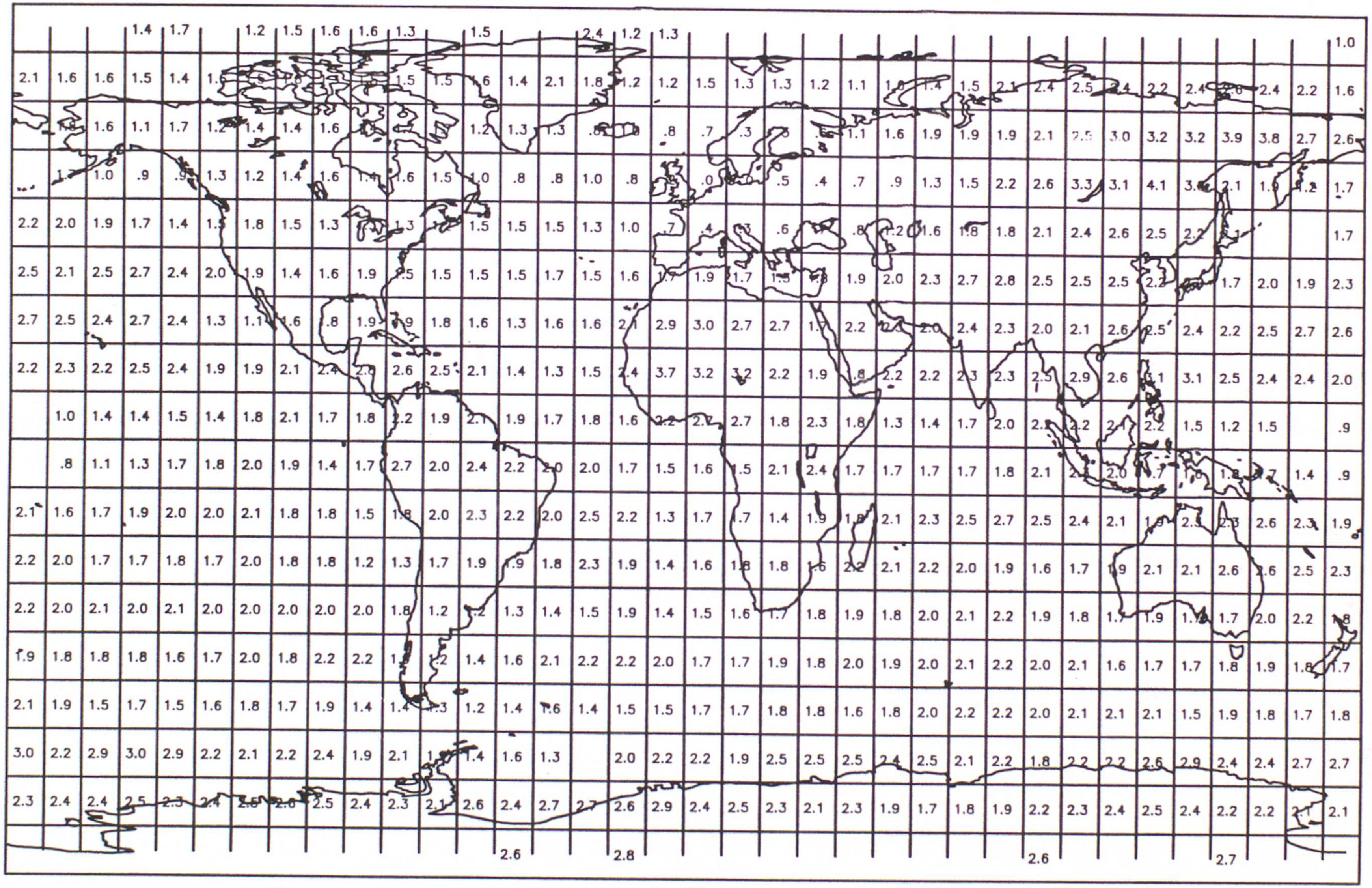


TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
40706	23.5	-53.7	ALL	MSLP	SUR	1	0	0	0.0	0.4	0.4
40707	34.5	-41.9	ALL	MSLP	SUR	1	0	0	0.0	0.9	0.9
44614	49.8	-39.9	ALL	MSLP	SUR	934	3	0	2.1	-0.6	2.2
44617	51.5	-30.3	ALL	MSLP	SUR	1018	5	0	1.9	0.1	1.9
44624	52.6	-44.3	ALL	MSLP	SUR	293	3	1	2.3	-0.1	2.3
44762	52.0	-35.8	ALL	MSLP	SUR	1012	2	0	2.0	-0.5	2.1
44764	58.3	-27.6	ALL	MSLP	SUR	1307	2	0	1.7	0.2	1.8
44766	51.8	-48.3	ALL	MSLP	SUR	584	4	1	2.1	-0.5	2.1
44767	61.6	-32.0	ALL	MSLP	SUR	1428	1	0	1.8	0.1	1.8
44769	62.0	-12.3	ALL	MSLP	SUR	332	138	42	3.2	0.8	3.4
44770	57.7	-45.7	ALL	MSLP	SUR	1	0	0	0.0	-13.3	13.3
44771	61.3	-40.7	ALL	MSLP	SUR	1222	1	0	1.9	0.6	2.0
44774	53.0	-11.9	ALL	MSLP	SUR	382	1	0	2.4	0.0	2.4
44775	52.4	-31.6	ALL	MSLP	SUR	1092	2	0	1.7	0.0	1.7
44776	56.6	-28.6	ALL	MSLP	SUR	1286	2	0	1.8	0.2	1.8
44780	54.5	-35.3	ALL	MSLP	SUR	1100	3	0	1.9	-0.3	1.9
48561	79.2	-8.3	ALL	MSLP	SUR	6	0	0	2.6	-5.7	6.3
62501	50.0	-4.4	ALL	MSLP	SUR	114	0	0	1.9	-0.2	1.9
62507	51.9	-6.5	ALL	MSLP	SUR	596	0	0	1.5	0.8	1.7
62509	49.1	-11.5	ALL	MSLP	SUR	356	0	0	1.5	0.5	1.6
62510	48.6	-17.6	ALL	MSLP	SUR	511	0	0	1.6	0.5	1.6
62511	44.4	-16.2	ALL	MSLP	SUR	518	0	0	1.3	0.9	1.5
62512	45.0	-12.7	ALL	MSLP	SUR	513	0	0	1.2	0.8	1.5
62513	48.6	-21.4	ALL	MSLP	SUR	497	0	0	3.2	1.8	3.6
62524	25.6	-33.8	ALL	MSLP	SUR	476	0	0	0.9	-0.2	0.9
64528	56.5	-35.0	ALL	MSLP	SUR	814	6	1	1.8	-0.5	1.8
64529	62.6	-29.4	ALL	MSLP	SUR	941	0	0	2.0	-0.1	2.0
64544	57.6	-43.1	ALL	MSLP	SUR	248	0	0	1.6	-0.3	1.6
64545	61.2	-23.8	ALL	MSLP	SUR	46	0	0	3.5	-1.9	4.0
64546	63.5	-32.8	ALL	MSLP	SUR	327	0	0	1.6	-1.5	2.2
64547	60.5	-35.6	ALL	MSLP	SUR	136	0	0	1.5	0.8	1.7
64548	60.0	-28.6	ALL	MSLP	SUR	89	0	0	1.9	-2.8	3.4
64560	60.3	-28.4	ALL	MSLP	SUR	898	3	0	1.9	-0.4	2.0
65571	56.0	-35.3	ALL	MSLP	SUR	817	1	0	2.1	-0.7	2.2
65592	57.5	-30.5	ALL	MSLP	SUR	736	12	2	2.0	0.4	2.1
84844	35.5	-30.9	ALL	MSLP	SUR	1	0	0	0.0	-1.0	1.0
WIND SPEED											
40707	34.5	-41.9	ALL	SPEED	SUR	1	0	0	0.0	3.5	3.5
44617	51.5	-30.3	ALL	SPEED	SUR	1007	1	0	2.1	-1.4	2.5
44762	52.0	-35.8	ALL	SPEED	SUR	1009	4	0	2.3	-1.1	2.5
44764	58.3	-27.6	ALL	SPEED	SUR	1308	2	0	2.8	-0.2	2.8
44776	56.6	-28.6	ALL	SPEED	SUR	1280	1	0	2.3	-1.0	2.5
62508	45.1	-11.6	ALL	SPEED	SUR	304	0	0	1.7	0.1	1.7
64544	57.6	-43.1	ALL	SPEED	SUR	206	3	1	3.9	-6.9	7.9
64545	61.2	-23.8	ALL	SPEED	SUR	48	0	0	3.6	-2.7	4.5
WIND DIRECTION											
40707	34.5	-41.9	ALL	DIRN.	SUR	1	0	0	0.0	13.0	13.0
44617	51.5	-30.3	ALL	DIRN.	SUR	954	1	0	29.6	-8.3	30.7
44762	52.0	-35.8	ALL	DIRN.	SUR	994	4	0	28.8	5.1	29.3
44764	58.3	-27.6	ALL	DIRN.	SUR	1280	2	0	24.4	2.5	24.5
44776	56.6	-28.6	ALL	DIRN.	SUR	1196	1	0	41.9	5.5	42.2
62508	45.1	-11.6	ALL	DIRN.	SUR	237	0	0	13.2	-6.3	14.6
64544	57.6	-43.1	ALL	DIRN.	SUR	171	3	2	83.7	-9.2	84.2
64545	61.2	-23.8	ALL	DIRN.	SUR	48	0	0	81.6	81.2	115.1

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2128	0	1	1.8	-0.2	2144	0	2	0	8.2	0.9
AAN	34	0	9	2.3	-0.9	32	0	6	0	12.5	-0.7
ACA	689	1	3	2.0	0.1	713	0	2	0	7.7	0.6
AEA	69	14	74	4.8	2.1	68	0	6	0	11.7	0.8
AEL	203	1	5	2.3	-0.3	212	0	4	0	10.0	0.1
AFL	80	1	100	3.0	1.7	78	0	100	1	14.4	2.5
AFR	743	1	6	1.9	-0.1	751	0	7	0	8.3	0.3
AIC	22	0	9	2.9	-0.6	22	0	18	0	17.3	4.5
AMX	161	1	100	1.8	-0.2	163	0	3	0	8.7	0.1
ANZ	157	0	3	2.0	-1.0	158	0	4	1	6.0	0.8
AOM	263	0	2	1.8	0.7	270	0	78	0	11.2	0.0
AUA	64	0	2	2.0	-0.6	65	0	3	0	9.3	1.4
AVA	67	4	6	2.2	-0.1	70	0	4	0	9.7	0.8
AZA	430	1	3	2.2	0.8	440	0	3	0	9.6	0.6
BAL	101	0	13	2.3	0.0	103	0	15	0	9.6	0.7
BAW	1065	2	6	2.0	-0.1	1090	0	5	0	8.4	1.2
BBB	30	7	17	1.2	0.1	30	0	13	0	5.7	0.0
BWA	107	1	2	2.1	1.0	109	1	66	0	11.8	-0.5
CDN	576	0	3	1.8	0.2	577	0	4	1	6.6	0.5
CFG	462	1	4	2.2	-1.0	480	0	3	0	9.6	-0.1
CKT	40	0	8	1.6	0.2	40	0	8	0	9.4	-0.7
CLI	28	0	0	1.8	-0.3	27	0	4	0	8.7	-0.3
CLX	60	0	3	1.9	-0.6	61	0	7	2	6.7	1.7
CMM	26	0	15	1.8	0.5	27	0	15	0	7.2	0.7
COA	308	1	2	1.9	0.6	314	0	4	1	9.2	0.3
CRL	67	0	3	2.2	0.0	70	1	4	0	11.3	1.5
CTM	29	3	34	2.9	-2.1	29	0	24	0	9.9	1.3
CUB	50	0	6	2.3	1.1	51	0	63	0	11.6	0.3
DAL	2242	1	3	2.1	0.3	2256	0	2	0	8.8	0.6
DHL	400	3	100	3.9	-1.7	410	0	100	0	10.0	0.2
DLH	1995	0	10	2.0	0.1	2016	0	12	1	8.2	1.1
DOA	124	1	69	2.1	0.0	127	0	14	0	10.1	-0.6
ELY	151	0	5	1.9	-0.3	154	0	59	0	8.6	1.4
FDX	334	0	3	2.0	0.8	341	1	5	0	8.9	1.3
FIN	337	0	2	1.9	0.3	335	0	2	1	7.2	0.4
GAF	23	0	0	1.7	1.1	24	0	0	0	7.5	0.1
GFA	33	0	0	1.6	0.1	33	0	0	0	6.8	0.2
HLF	56	0	0	2.2	-1.4	59	0	2	0	11.0	-0.3
IBE	905	1	19	2.0	0.1	906	0	70	0	11.2	0.1
ICE	467	0	2	1.7	0.1	467	0	2	0	6.8	0.4
JAL	25	0	4	2.0	-0.4	25	4	12	4	8.3	2.0
KLM	1523	0	2	1.9	0.1	1527	0	2	0	8.2	1.1
LDA	137	0	9	2.1	-1.2	137	0	7	0	7.8	0.7
LDI	116	2	7	2.6	-1.7	119	1	5	0	8.9	-0.8
LIB	68	3	3	1.6	0.1	68	0	3	0	9.5	-0.9
LOT	399	1	2	1.8	-0.1	400	0	3	0	7.8	-0.4
LTU	491	0	4	2.2	0.5	491	0	3	0	9.6	0.2
MKD	59	0	0	1.7	-0.7	62	0	2	0	10.0	1.6
MPH	395	1	3	2.0	-0.3	390	0	2	0	8.9	1.0
NWA	1842	0	2	2.1	1.1	1878	0	3	0	8.4	0.5
OAL	32	0	0	2.6	2.0	33	0	3	0	12.3	4.5
PIA	21	0	0	1.6	-0.1	23	0	4	0	10.8	2.0
RJA	64	2	2	2.7	1.2	66	0	3	0	8.2	0.4
RRR	67	4	18	2.0	0.6	68	0	100	1	8.9	1.0
SAB	65	2	2	1.7	0.3	68	0	1	0	7.0	0.5
SAS	1075	0	1	1.9	-0.1	1071	0	1	0	7.7	0.4
SIA	77	0	0	2.2	-1.1	79	0	51	0	8.4	-0.6
SPP	117	2	10	2.2	-0.5	116	0	8	0	8.9	0.6
SVA	126	0	2	1.8	0.3	137	1	4	1	7.6	0.2

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SWR	146	0	2	1.9	0.2	147	0	1	0	7.7	0.7
TAP	208	0	9	1.8	0.0	205	0	11	0	8.9	1.1
TEJ	27	0	19	2.6	0.6	29	3	17	0	11.9	2.4
TIH	46	0	4	1.4	-0.3	46	0	7	0	11.4	-0.2
TOW	55	0	9	2.7	0.8	55	0	100	0	8.8	0.7
TWA	880	0	2	2.0	0.2	891	0	2	0	9.3	0.5
UAL	1521	1	3	2.2	-0.5	1554	0	3	1	8.1	0.5
ULE	50	0	2	2.3	-0.3	51	0	0	0	8.8	1.3
UPS	483	0	16	1.9	-0.3	488	0	17	0	8.0	0.5
USA	199	1	3	1.7	-0.1	201	0	2	0	7.4	1.9
VIA	112	2	2	2.0	1.0	118	2	4	0	9.2	0.8
VIR	127	0	1	1.8	-0.1	135	0	66	1	8.2	1.9
WOA	35	6	17	1.9	0.6	36	0	14	0	8.5	0.7
BA	8103	0	14	1.8	0.7	8095	0	14	0	7.7	1.2
KL	1630	0	100	3.0	2.5	1629	0	22	0	7.9	1.2
LH	398	0	7	2.0	0.1	394	0	62	1	8.3	0.3
M	134	1	67	3.5	1.1	139	2	63	0	11.8	2.4
N	140	0	3	2.6	1.4	146	0	5	0	9.7	0.3

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	15.0	-15.0
DBBH	12	Z	100	3	0	22.6	32.5	23.3
DBLK	00	Z	100	1	0	0.0	1.0	-1.0
EBBH	00	Z	100	1	0	0.0	2.0	-2.0
EHOA	00	Z	100	1	0	0.0	6.0	6.0
EHOA	12	Z	100	2	0	4.5	5.7	-3.5
FNOR	00	Z	100	7	0	14.5	26.3	21.9
FNOR	12	Z	100	4	0	16.1	17.6	7.3
FNOU	00	Z	100	3	0	11.2	13.8	8.0
FNOU	12	Z	100	2	0	5.0	13.0	12.0
FNPH	00	Z	100	14	0	17.9	18.5	-4.8
FNPH	12	Z	100	14	0	21.5	24.5	-11.8
FNRS	00	Z	100	13	0	22.6	23.3	-5.5
FNRS	12	Z	100	8	0	19.9	21.8	-8.9
GACA	00	Z	100	29	0	14.5	15.0	4.0
GACA	12	Z	100	29	0	22.0	23.8	9.2
JCCX	00	Z	100	1	0	0.0	36.0	36.0
LDWR	00	Z	100	27	0	18.7	20.3	8.0
LDWR	12	Z	100	25	0	22.6	23.7	7.3
OXYL	00	Z	100	15	0	25.1	30.0	16.5
OXYL	12	Z	100	12	0	16.3	35.9	31.9
OZJP	00	Z	100	10	0	19.3	21.7	9.9
OZJP	12	Z	100	8	1	30.2	32.4	11.6
SHIP	00	Z	100	1	0	0.0	25.0	25.0
SHIPS	00	Z	100	2	0	1.5	60.5	60.5
SHIPS	12	Z	100	7	0	22.6	65.3	61.3
V2LV	00	Z	100	16	0	26.7	28.3	-9.3
V2LV	12	Z	100	18	0	26.5	27.1	5.8
V2LX	00	Z	100	23	0	24.2	25.7	8.8
V2LX	12	Z	100	26	0	19.8	26.6	17.8
ZDLG	00	Z	100	1	0	0.0	29.0	29.0
03953	00	Z	100	29	0	20.7	24.4	13.0
03953	12	Z	100	28	0	18.8	30.6	24.2
04018	00	Z	100	31	0	17.7	27.8	21.4
04018	12	Z	100	31	0	18.8	33.5	27.7
04220	00	Z	100	31	0	22.5	25.7	12.5
04220	12	Z	100	30	0	27.2	29.2	10.7
04270	00	Z	100	30	0	16.9	18.3	7.0
04270	12	Z	100	29	0	13.6	15.5	7.4
04339	00	Z	100	28	0	16.7	18.3	7.4
04339	12	Z	100	29	0	16.8	18.9	8.6
04360	00	Z	100	30	0	22.7	25.6	11.8
04360	12	Z	100	31	0	16.5	20.9	12.7
08001	00	Z	100	21	0	26.5	27.3	6.2
08001	12	Z	100	25	0	19.6	22.4	10.9
08508	00	Z	100	30	0	26.5	31.1	16.3
08508	12	Z	100	28	0	23.9	24.1	3.3
08594	00	Z	100	28	0	14.6	19.5	-13.0
08594	12	Z	100	29	0	18.1	20.5	-9.5
60020	00	Z	100	26	0	16.9	17.1	2.9
60020	12	Z	100	28	0	14.5	17.4	9.6
71600	00	Z	100	26	0	21.6	24.0	10.5
71600	12	Z	100	27	0	21.3	21.5	-2.9
72201	00	Z	100	28	0	21.3	31.6	23.4
72201	12	Z	100	26	0	29.2	36.8	22.4
72402	00	Z	100	25	0	21.0	50.4	45.8
72402	12	Z	100	28	0	21.2	38.3	31.9
74494	00	Z	100	22	0	30.0	31.9	-11.1
74494	12	Z	100	29	0	19.8	25.7	-16.4

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	4	0	14.6	21.5	-15.8
DBBH	12	Z	500	2	0	1.0	1.4	1.0
DBLK	00	Z	500	1	0	0.0	13.0	-13.0
EBBH	00	Z	500	1	0	0.0	1.0	1.0
EHOA	00	Z	500	1	0	0.0	25.0	25.0
EHOA	12	Z	500	2	0	32.0	35.8	-16.0
FNOR	00	Z	500	6	0	6.9	8.6	5.2
FNOR	12	Z	500	4	0	10.1	10.8	-4.0
FNOU	00	Z	500	3	0	7.8	9.1	4.7
FNOU	12	Z	500	1	0	0.0	8.0	8.0
FNPH	00	Z	500	14	0	11.3	11.5	2.1
FNPH	12	Z	500	14	0	7.5	7.9	-2.5
FNRS	00	Z	500	14	0	14.4	14.6	-2.4
FNRS	12	Z	500	11	0	8.6	10.4	-5.8
GACA	00	Z	500	29	0	10.3	10.4	0.9
GACA	12	Z	500	29	0	19.1	19.1	-0.2
JCCX	00	Z	500	1	0	0.0	18.0	18.0
LDWR	00	Z	500	28	0	15.9	18.5	9.5
LDWR	12	Z	500	27	0	13.9	14.9	5.6
OXYL	00	Z	500	15	0	19.8	19.9	-2.0
OXYL	12	Z	500	13	0	12.6	15.4	8.9
OZJP	00	Z	500	10	0	21.4	22.9	-8.4
OZJP	12	Z	500	12	0	36.3	40.7	18.3
SHIP	00	Z	500	1	0	0.0	12.0	12.0
SHIPAA	00	Z	500	1	0	0.0	1.0	1.0
SHIPS	00	Z	500	13	0	10.4	18.3	15.0
SHIPS	12	Z	500	13	0	10.2	27.2	25.2
V2LV	00	Z	500	23	0	12.9	13.4	-3.3
V2LV	12	Z	500	25	0	19.8	20.2	4.3
V2LX	00	Z	500	24	0	17.3	20.7	11.3
V2LX	12	Z	500	27	0	10.0	10.1	1.6
ZDLG	00	Z	500	1	0	0.0	16.0	16.0
03953	00	Z	500	31	0	13.4	14.9	6.6
03953	12	Z	500	30	0	14.2	16.6	8.6
04018	00	Z	500	31	0	14.8	17.5	9.3
04018	12	Z	500	31	0	12.7	16.6	10.7
04220	00	Z	500	31	0	14.0	14.1	2.0
04220	12	Z	500	31	0	22.5	22.5	1.0
04270	00	Z	500	31	0	14.3	14.5	-2.4
04270	12	Z	500	31	0	14.0	14.4	3.3
04339	00	Z	500	28	0	14.4	14.8	3.7
04339	12	Z	500	29	0	16.3	17.3	5.9
04360	00	Z	500	31	0	18.2	19.6	-7.1
04360	12	Z	500	31	0	14.2	15.2	-5.4
08001	00	Z	500	28	0	16.6	18.2	7.4
08001	12	Z	500	28	0	16.2	16.2	1.5
08508	00	Z	500	31	0	19.8	20.2	3.8
08508	12	Z	500	31	0	15.9	15.9	-1.0
08594	00	Z	500	28	0	13.7	13.7	1.2
08594	12	Z	500	29	0	12.8	12.8	0.9
60020	00	Z	500	28	0	12.4	12.9	3.7
60020	12	Z	500	29	0	12.3	15.8	9.9
71600	00	Z	500	26	0	15.6	15.7	-1.2
71600	12	Z	500	29	0	18.3	19.6	-7.0
72201	00	Z	500	28	0	7.7	9.5	5.6
72201	12	Z	500	29	0	7.8	8.8	4.0
72402	00	Z	500	29	0	11.1	16.5	12.2
72402	12	Z	500	28	0	9.7	14.2	10.4
74494	00	Z	500	25	0	19.0	19.2	-2.1
74494	12	Z	500	30	0	11.0	11.6	-3.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	2	0	0	0.0	-2.9	-0.5
DBBH	12	V	100	3	0	0	0.0	-3.4	-2.0
DBLK	00	V	100	1	0	0	0.0	4.3	-0.3
EBBH	00	V	100	1	0	0	5.1	-2.1	2.0
EHOA	00	V	100	1	0	0	5.1	1.2	1.9
EHOA	12	V	100	2	0	0	5.1	1.4	5.4
FNOR	00	V	100	6	0	0	5.1	0.6	-1.1
FNOR	12	V	100	4	0	0	5.1	-0.3	2.8
FNOU	00	V	100	3	0	0	5.1	0.9	-2.0
FNOU	12	V	100	1	0	0	5.1	-6.4	-4.1
FNPH	00	V	100	14	0	0	5.1	-1.7	-1.9
FNPH	12	V	100	14	0	0	4.9	-3.1	-0.6
FNRS	00	V	100	13	0	0	4.4	-1.2	-1.5
FNRS	12	V	100	8	0	0	3.1	-3.8	-1.0
GACA	00	V	100	29	0	0	3.1	-0.3	0.9
GACA	12	V	100	29	0	0	2.6	-2.5	-0.2
JCCX	00	V	100	1	0	0	3.0	-5.8	-2.1
LDWR	00	V	100	27	0	0	3.3	-0.6	-0.9
LDWR	12	V	100	24	0	0	2.8	-1.2	-0.2
OXYL	00	V	100	15	0	0	2.8	-0.4	0.8
OXYL	12	V	100	12	0	0	3.1	-1.9	0.7
OZJP	00	V	100	9	0	0	3.4	0.6	1.9
OZJP	12	V	100	9	0	0	3.4	-1.9	0.9
SHIP	00	V	100	1	0	0	3.4	0.9	3.6
SHIPS	00	V	100	1	0	0	3.4	2.3	0.6
SHIPS	12	V	100	6	0	0	3.4	-1.4	0.6
V2LV	00	V	100	16	0	0	3.4	0.5	-0.9
V2LV	12	V	100	19	0	0	3.2	-0.3	-1.4
V2LX	00	V	100	24	0	4	2.8	0.7	-2.5
V2LX	12	V	100	25	0	0	6.1	-1.4	-0.4
ZDLG	00	V	100	1	0	0	3.4	0.4	-1.5
03953	00	V	100	26	0	0	3.9	-1.5	-0.4
03953	12	V	100	28	0	0	2.9	-1.9	-0.1
04018	00	V	100	30	0	0	3.2	-0.1	0.1
04018	12	V	100	29	0	0	2.7	-0.5	0.4
04220	00	V	100	31	0	0	1.7	0.2	1.7
04220	12	V	100	30	0	0	2.2	0.1	0.2
04270	00	V	100	28	0	0	3.2	1.0	0.8
04270	12	V	100	28	0	0	3.8	0.2	1.2
04339	00	V	100	25	0	0	2.2	0.0	-1.0
04339	12	V	100	29	0	0	2.4	-0.4	-0.7
04360	00	V	100	29	0	0	2.8	-0.5	0.6
04360	12	V	100	30	0	3	2.4	-0.1	0.2
08001	00	V	100	20	0	0	3.9	0.4	1.3
08001	12	V	100	22	0	0	2.6	-2.7	1.2
08508	00	V	100	30	0	0	3.2	-1.2	-1.2
08508	12	V	100	28	0	0	3.4	-2.3	-0.8
08594	00	V	100	1	0	0	3.3	9.5	-5.5
60020	00	V	100	25	0	0	4.2	1.9	0.6
60020	12	V	100	26	0	0	4.3	-1.4	2.2
71600	00	V	100	24	0	0	3.2	1.1	0.7
71600	12	V	100	26	0	0	3.6	0.2	0.6
72201	00	V	100	22	0	0	3.7	0.1	0.0
72201	12	V	100	23	0	0	3.7	-0.9	-0.9
72402	00	V	100	23	0	0	4.3	0.3	0.9
72402	12	V	100	24	0	0	3.0	-0.4	-0.1
74494	00	V	100	20	0	0	4.8	0.7	0.6
74494	12	V	100	24	0	0	3.4	1.0	1.1

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	4	1	20	0.0	-13.3	-28.2
DBBH	12	V	500	1	0	0	0.0	2.1	-2.0
DBLK	00	V	500	1	0	0	0.0	-1.2	1.2
EBBH	00	V	500	1	0	0	6.2	4.3	2.2
EHOA	00	V	500	1	0	0	6.2	1.9	-1.0
EHOA	12	V	500	2	0	0	6.2	0.3	-0.5
FNOR	00	V	500	6	0	0	6.2	-1.0	0.1
FNOR	12	V	500	4	0	0	6.2	1.6	-0.9
FNOU	00	V	500	3	0	0	6.2	0.8	-0.8
FNOU	12	V	500	1	0	0	6.2	-1.9	-2.0
FNPH	00	V	500	14	0	0	6.2	-0.2	0.4
FNPH	12	V	500	14	0	0	3.7	-1.5	1.0
FNRS	00	V	500	13	1	7	2.1	4.6	1.7
FNRS	12	V	500	10	1	9	3.2	12.9	14.3
GACA	00	V	500	29	0	0	2.4	-0.5	1.6
GACA	12	V	500	29	0	0	5.5	1.1	1.2
JCCX	00	V	500	1	0	0	6.0	2.1	-0.8
LDWR	00	V	500	28	0	0	3.0	-1.2	2.1
LDWR	12	V	500	27	0	0	6.0	1.3	1.4
OXYL	00	V	500	15	0	0	6.7	1.7	0.4
OXYL	12	V	500	12	0	0	4.9	0.8	-1.5
OZJP	00	V	500	9	0	0	3.7	0.1	1.1
OZJP	12	V	500	11	0	0	3.7	-1.3	0.0
SHIP	00	V	500	1	0	0	3.0	2.6	-0.1
SHIPAA	00	V	500	1	0	0	3.0	-3.8	-4.3
SHIPS	00	V	500	13	0	0	3.0	-0.2	0.8
SHIPS	12	V	500	13	0	0	1.8	0.0	1.7
V2LV	00	V	500	22	0	0	2.9	1.8	0.0
V2LV	12	V	500	24	0	0	3.1	-0.3	0.1
V2LX	00	V	500	25	0	8	3.4	0.6	-0.7
V2LX	12	V	500	27	0	0	4.2	0.0	1.1
ZDLG	00	V	500	1	0	0	4.2	-0.3	-6.7
03953	00	V	500	31	0	0	3.5	-0.3	0.8
03953	12	V	500	29	0	0	5.0	-0.3	0.6
04018	00	V	500	31	0	3	4.8	-0.9	1.5
04018	12	V	500	31	0	0	4.1	0.0	1.8
04220	00	V	500	31	0	0	3.1	-1.2	0.3
04220	12	V	500	30	0	0	3.2	-0.1	-1.5
04270	00	V	500	30	0	0	3.3	-1.3	-0.7
04270	12	V	500	31	0	0	5.0	0.9	-1.1
04339	00	V	500	28	0	0	5.0	-1.0	0.7
04339	12	V	500	29	0	0	3.5	0.0	0.8
04360	00	V	500	31	0	0	4.8	-1.3	0.1
04360	12	V	500	30	0	0	4.1	0.2	-0.3
08001	00	V	500	28	0	0	2.7	1.1	0.4
08001	12	V	500	28	0	0	4.3	-1.1	0.2
08508	00	V	500	31	0	0	3.0	0.8	0.8
08508	12	V	500	31	0	0	4.4	0.2	0.5
60020	00	V	500	28	0	0	3.6	-0.9	-0.4
60020	12	V	500	29	0	0	3.2	-2.5	-0.3
71600	00	V	500	25	0	0	4.7	0.8	0.2
71600	12	V	500	29	0	0	5.8	1.0	-0.1
72201	00	V	500	26	0	0	3.5	0.2	0.0
72201	12	V	500	28	0	0	3.1	0.6	-0.1
72402	00	V	500	29	0	0	3.6	0.1	0.2
72402	12	V	500	27	0	0	2.3	0.1	0.1
74494	00	V	500	25	0	0	6.9	1.0	0.6
74494	12	V	500	30	0	0	3.4	-0.8	0.4

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45